Blood, Fat and Tears:

An exploration of the relationship between menarche, body attitude and mood in adolescent girls

Cyan Harte

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Declaration

I declare that the work contained in this thesis is all my own.

J Cyan Harte

Cyan Harte

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Abstract

As a decisive event in adolescent girls' pubertal development it is suggested that menarche may play an influential role in shaping attitudes toward the body and the self. As body image has been strongly linked to self-esteem in adolescence it is argued that theses processes may have an effect on mood and relate to changing patterns of psychological difficulties encountered by females throughout adolescence.

The main aims of this study were, firstly to identify if menarche is a pivotal event in terms of a change in attitudes towards the body, secondly to explore the possibility that taking on conflicting societal messages regarding the menstruating woman may be related to low mood and unhelpful attitudes towards the body, thirdly, to identify if increased experience of menstruation is associated with greater comfort with menstruation as a natural and acceptable part of the self and finally to identify relationships between positive and negative attitudes toward menstruation and body image, mood and participation in sexual activity.

The attitudes of 354 adolescent girls from a high school population were collected using a self report questionnaire which incorporated measures of menstrual attitudes, body attitudes, mood and information regarding menstrual and menarcheal status.

Results did not find a specific change in attitudes towards the body with menarche, but a possibly more complex picture of relationships between variables. Conflicting attitudes were not found to be associated with low mood or unhelpful attitudes towards the body. Increased experience of menstruation was associated with increased perception of menstruation as a socially acceptable event. Positive perceptions of social attitudes towards menstruation and feelings of attractiveness were found to be related to fewer concerns regarding weight and shape of the body, better mood, a tendency to see menstruation as less debilitating and a reduced likelihood to participate in sexual activity.

1 Introduction

Menarche, an adolescent girl's first menstruation is a very definite event, not emerging gradually as do other pubertal changes. It has therefore been suggested that it may be an important symbol for the individual with regard to her emerging womanhood (Brooks-Gunn, 1982). Given that being a women in today's society seems to be inextricably linked to messages regarding female ideals of beauty and shape, it seems likely that the event of menarche may be related to how these messages are incorporated into the adolescents sense of gendered self. It is also likely that the way that this developmental marker is experienced provides messages in itself, as to what it means to be a menstruating woman. This thesis aims to explore relationships between attitudes towards the body and attitudes towards menstruation in the context of the event of menarche. Puberty is also recognised as a time when proportions of psychological disturbance between the sexes shift, taking on a pattern similar to that associated with the adult population. In addition, this study was therefore interested in looking at how mood related to relationships between attitudes.

In order to provide a background to the aims and hypotheses of this study, the introduction reviews the literature pertaining to relevant issues. Firstly it will look at theories and research with regard to adolescent development in order to put the study in the context of the accompanying physical, social, cognitive and emotional changes, which are taking place at the time of menarche. Secondly it will examine the literature on the development of body image and difficulties that may arise due to disturbances in body images. Thirdly it will look at how the pattern of psychological difficulties changes throughout puberty in the adolescent population. Finally there is a discussion surrounding the literature pertaining to menarche and menstruation examining the meanings associated with and experience of these phenomena.

1.1 Adolescent Development

The following section does not attempt to be a comprehensive guide to development in adolescent girls. Instead it tries to present those aspects of physical, cognitive, social and emotional development that are most likely to interact with the event of menarche.

1.1.1 Physical Changes

Physical changes that take place at puberty are primarily governed by interactions between the hypothalamus, the pituitary gland and the gonads (Smith, Cowie & Blades, 2003). This is a system that is quite active before birth and operates at a low level thereafter. It kicks into action again in middle childhood when the hypothalamus becomes more sensitive to messages it is receiving and begins to send messages to the pituitary to release adrenocorticotrophic hormones. About two years later the pituitary starts to release gonadotrophic hormones, which are responsible for the growth of the gonads (ovaries in girls). These systems work together, dictating the development of primary (menarche) and secondary (e.g. breasts and pubic hair) sexual characteristics.

Changes in sexual characteristics are accompanied early on in puberty by a marked acceleration in growth. This growth spurt is often the first obviously physical sign of puberty. In girls it starts roughly one to two years earlier than in boys (Carr, 1999), leading to the familiar sight in late primary and early secondary school classes where girls tower over their male peers. This is usually followed by breast budding at approximately 10½ years of age, and then pubic hair growth. The reproductive organs also change, becoming larger. The clitoris becomes more sensitive and uterus and vagina linings are strengthened. Menarche is usually achieved later on in the scheme of things, just after the growth spurt when growth is rapidly decelerating (Tanner, 1962), averaging at around 13 years of age for British girls (Whincup, Gilg, Odoki, Taylor & Cook, 2001).

Other physical changes which take place later on in puberty for girls are: an increase in activity in sweat glands in the skin, which often leads to acne; a deepening of the voice and an increase in body fat (Smith, Cowie & Blades, 2003).

Tanner (1962) identified that the age at which girls develop and the speed and order of the growth of sexual characteristics can vary substantially between individuals. Within a group of girls around the age of 13 differences in development can be quite marked, ranging from some who still look very much prepubescent to those who look like grown women. These differences seem to be due to an interaction between a number of factors including genetics, nutrition, hormonal changes and general health. It is generally thought that the age of menarche has dropped substantially over the last couple of hundred years (Coleman & Coleman, 2002), dropping from an average age of 17 in the 1840's to around 13 in the 1970's (Tanner, 1973). This decline in age is generally attributed to improvements in health and nutrition and does not appear to have been sustained, with studies over the last few decades indicating that there has been little reduction in age of menarche (Coleman & Coleman, 2002). Questions have been raised concerning the reliability of the earlier studies into age of menarche (Delaney, Lupton & Toth, 1988) due to questionable methodology and the fact that menstruation was, in the past, often associated with loss of virginity, which may have led to a response bias.

1.1.2 Cognitive Changes

Alongside these significant changes in the adolescent girl's body come equally substantial changes in the way that she is able to think and conceptualise the world around her. Adolescence is associated with Piaget's fourth stage of cognitive development, the formal operational period (Piaget, 1950). The acquisition of formal operational thought involves the development of the ability to think in a more scientific way than previously, taking into account the relationships between several factors to make predictions about possible outcomes. Adolescents are able to solve increasingly abstract problems in a logical way and use complex concepts to express themselves and think things through. Piaget's theory put the age for development of these processes at between 11 and 15 years. However, more recent findings (Smith,

Cowie & Blades, 2003) suggest that the process may take longer and that an individual's ability to use formal operational reasoning is often better when applied in some areas of their life than others. Those areas in which the adolescent is more practiced or where their interest lies are more likely to show well developed formal operational thought.

The acquisition of these advanced cognitive abilities inevitably has an impact on all areas of an adolescent's life. They are able to consider future options, along with consequences of their own and others' actions, and the influence situational circumstances may have on how themselves and others might behave or think. This ability to put themselves in supposed situations is also coupled with another feature of this developmental period, "adolescent egocentrism" (Piaget, 1950). In this position the young adolescent is unable to see how others do not see things in the same "logical" way that they do. This may be reflected in the idealism and determination often encountered in people within this age group. Along with increased insight into how one's own actions and existence can impact on others this egocentricity is accompanied by a tendency to focus in on oneself. Elkind (1967) suggested that adolescents will imagine how their behaviour, or looks, are likely be perceived by an "imaginary audience", and that they will commonly make up imaginary stories of their own lives. The result of this inflated idea of their own impact on others explains the self-consciousness displayed by adolescents.

1.1.3 Importance of Peer Group Relationships In Adolescence

Adolescence is a time when people start to become more independent, spending more time outwith the home, with friends and other members of the community. It is also a time that is associated with changes in peer group, perhaps due to individuals being drawn to others who are at the same stage physically, or more formally with the move from primary to secondary school. This can be a big change. Secondary schools are generally much bigger and impersonal than primary schools, but they offer up a much bigger choice of friends. In rural areas, like the Scottish Borders, the move to secondary school can mean travelling quite long distances to a school in a town, away from familiar people and places.

The peer group has been identified as an important context in which young people develop emotional, cognitive and social skills (Rudolph and Asher, 2000). An individual's experience of relating to others interacts with previously held beliefs, temperament and emotional and behavioural styles to create an environment where adaptive or maladaptive processes are enhanced (Rudolph and Asher, 2000). Positive peer relationships can be a protective factor to those experiencing other difficulties and life stresses. In an addition to Erikson's psychosocial stage model of human development, Newman and Newman (1991) have proposed that the need to fit into a peer group is the most important psychosocial goal of early adolescence. If this is not achieved, the result is thought to be alienation and potential isolation from a supportive social network in later life stages.

Emphasis on the importance of relationships in the enhancement of intellectual development is most commonly associated with Vygotsky (Smith, Cowie & Blades, 2003), who argued that input from others who were more skilled was a crucial factor in children's intellectual growth. The role of social interaction in assisting increasingly complex ways of thinking has also been proposed more recently by Doise and Mugny (1984) who have suggested that through working co-operatively and managing conflicts by negotiation, a child's peer group can also provide a "scaffold" which facilitates them in restructuring their ideas and thoughts.

As well as being a source of support and frame for development (or not, as the case may be), the peer group to which an individual belongs can be an important reference point from which adolescents draw conclusions regarding societal norms (Harris, 1998). Research suggests that during puberty, girls will tend to form friendships with those who are at a similar stage of physical development to themselves (Brooks-Gunn andReiter, 1990). In the case of those who are early developers, this can lead to association with older groups who are already sexually active or engaging in risky behaviour. Findings that early maturation is often associated with risk taking behaviour and low self-esteem may be partly explained by this phenomenon (Magnusson, Stattin and Allen 1985; Caspi, Lynam, Moffitt and Silva, 1993).

Girls may be particularly sensitive to the effects of the peer group around puberty. Coleman (1980) found that themes of anxiety about rejection by peers were more likely to arise in relation to the topic of friendship between the ages of 11 to 15 years, declining again by the age of 17 in both sexes. This effect was greater for girls than boys. Girls have also been found to be more likely to base moral decisions on their view of obligations within a relationship than boys, who are more likely to base decisions on agreed societal rules (Gilligan, 1982).

1.1.4 Emotional Development

It is generally accepted that the journey through adolescence can be difficult, but that most people get through it unscathed. However, some do find the process easier than others, and the determination of what factors contribute to this is a key issue. Paikoff and Brooks-Gunn, (1991) have suggested that the extent to which a girl is likely to find an event emotionally challenging is in part dependent on the meaning that she associates with it.

Hormonal differences at puberty have been cited in several studies as a cause for difficulties experienced in adolescence as well as a reason for girls suffering from increased depression from puberty onwards (Kaltiala-Heino et al.,2003; Bisaga et al., 2002; Patton et al., 1996). Research suggests that rises in estradiol, an estrogen hormone, is associated with depressive symptoms. However, the level of this hormone accounted for only 1 per cent of variance in depressive symptoms compared with the effects of negative life events, which accounted for 8 per cent (Brooks-Gunn, 1990).

The move towards formal operational thought discussed earlier means that the emerging adolescent has the ability to think in an increasingly abstract manner, leading to more complex appraisals of her own and others' feelings and motivations (Fonagy, 1997). An adolescent is thus in a position to attach more sophisticated meanings to the physical changes that she is experiencing, as well as to her relationships and the daily interactions which take place in her family and social group. Fonagy (1997) argues that the pressure of these thoughts combined with

increasing pressure to become more independent can become overwhelming at times. The amount of stress that is experienced during such times and the individual's past experience of managing emotion both have a bearing on how well they are able to cope. Self-esteem has been found to be high in pre-adolescents, with a sharp drop being experienced around the age of 12. It has been postulated that this could be related to the adolescent's increasingly complex thought processes, a growing sensitivity to how others view her, and a mounting awareness of bodily changes (Carr, 1999). A steady increase in self-esteem is observed from this level throughout adolescence.

Children learn to identify and regulate their emotions in the context of a secure attachment relationship with parents or carers (Bowlby, 1992). Processes such as parental modelling and labelling of emotions in context, combined with the parent being able to contain the child's strong emotions in a way that they are experienced by the child as more manageable and less daunting lead to emotional understanding and maturity. An individual is at a disadvantage if they have been prevented from learning skills which enable them to put emotions in context, appreciate that they can influence their own emotions and bear strong emotions when they arise. If this is the case, more complex emotional situations which may arise during adolescence may be frightening and feel out of control. This can lead to increasingly maladaptive strategies for coping with emotion and stress such as withdrawal from potentially difficult situations, risk taking or aggressive behaviours (Southam-Gerow and Kendall, 2002). This can result in failure to find a peer group and the supportive and learning opportunities that this brings, putting the adolescent at a further disadvantage (Rudolph and Asher, 2000).

With the move away from spending much of their time with parents and the cognitive, social, emotional and physical changes that are taking place, adolescence is a time when individuals start to form a more comprehensive concept of who they are. Around the time of entering the formal operational period children start to describe themselves in more sophisticated and abstract ways, in terms of personality traits and qualities (Carr, 1999). This not only shows that the child is now able to

think in more complex ways but demonstrates that ideas about how others see a person have been integrated into their sense of self.

Erikson (1968) saw identity formation as the main task of adolescence, suggesting a period of moratorium, during which the individual experiments with a number of different identities before a more stable identity is settled upon. Research suggests that this period of experimentation may be a fairly modern phenomenon and that it can occur for different types of identity at different times, continuing into adulthood (Marcia, 1981). Successful completion of a period of moratorium is associated with high self-esteem, realistic goals, a strong sense of independence and more resilience in the face of stress (Carr, 1999).

The importance of a good relationship with parents for this process to take place has been discussed by Winnecott (1974). A level of confrontation with parents is seen as normal and necessary during the process of individuation and identity formation. Winnecott (1974) believes that parental containment of strong emotions and conflict during this period is crucial to successful development and that if too much responsibility is handed to the adolescent at this time they will be forced to make a jump to a false maturity without the space to experiment in creating their own identity.

The lack of strong, safe attachment relationships can also lead to difficulties in terms of enabling the adolescent to successfully separate from the caregiver. As a child, an individual's experience of themselves is inextricably linked to that of the caregiver, internalisation of the behaviour and emotions of the other person shaping the self. Fonagy (1997) argues that in order for the adolescent to separate from the caregiver, both similarities and differences between the emerging self and the caregiver must be recognised. If parts of the internalised parent are strongly negative this causes conflict within the emerging self. Within a close relationship with the parent these negative aspect of the self can be rejected within the context of conflict with the parent. However, if the parent is no longer around, the individual struggles to deal with the negative element of themselves internally, leading to a disorganised sense of self.

A sense of self is closely related to the roles that an individual sees herself as filling. Traditionally, roles for boys and girls that are generally accepted as the norms within society have been quite different. Studies show that parents do expect and reward sex-typed behaviour (Carr, 1999), although these roles are being increasingly challenged. A selection of studies have suggested that both men and women who feel comfortable with both the masculine and feminine aspects of their personalities are more psychologically healthy than those who see themselves as filling mainly masculine or feminine roles (Smith et al., 2003). .

1.1.5 Body Image

A girl's body image is her perception of her body in her "mind's eye", how she sees it and how she believes it fits in with societal norms. It is part of her identity. Body image forms an important part of self-esteem, research indicating that people who evaluate their bodies more favourably have higher self-esteem than those who do not (Harter and Jackson, 1993). Ben-Tovim and Walker (1991) have identified a number of salient themes in women's attitudes towards their own bodies. These include: self assessed strength and fitness; feelings of fatness, feelings of disgust with the body; the amount of importance placed on weight and shape in the individual's life; self perceived physical attractiveness; and feelings of lower body fatness. It is important to recognise that in the study was conducted on a predominantly white, westernised sample of women.

Disturbances of body image, including negatively distorted views of one's appearance, body image dissatisfaction or over-evaluation of one's appearance in defining a sense of self can have adverse affects on psychological well-being and quality of life (Striegel-Moore and Franko, 2002). Undue influence of body weight or shape on self-evaluation is part of DSM-IV (American Psychiatric Association, 1994) criteria for the psychiatric conditions of both anorexia nervosa and bulimia nervosa. Eating disorders such as these are generally associated with the onset of adolescence in girls. They are more common in western industrialised countries than elsewhere, the incidence of them having increased since the 1960's (Carr, 1999). This rise in the number of eating disorders among girls and women is generally

thought to relate to increasing social pressure to be thin (Stice & Shaw, 2002). Pressure stems from a number of sources including the media, family, peers and dating partners (Stice & Shaw, 2002).

Physical ideals presented to women by the media have been noted to be increasingly unrealistic, Wolf (1994) describing that the desired weight of women based on the messages they are exposed to in the media, is on average about one stone less than their natural healthy weight. She argues that in order to reach this slim ideal, women are encouraged to diet, most diets inflicting a regime of reduced calories (800 – 1400 calories per day) equivalent to starvation rations reported during times of siege and shortage. If dieting fails then cosmetic surgery is increasingly being used to try and obtain this "ideal" weight.

Women trying to adhere to these ideals are thus stuck in a losing battle against their own bodies, leading to dissatisfaction and low self-worth. A study conducted by Steiner-Adair (1990) looking at attitudes towards eating (using the Eating Attitudes Test, EAT) and perceptions of cultural values in 14 to 18 year old girls found 60 per cent of the sample showed an awareness of cultural female expectations yet differentiated this from their own ideal (wise woman group), whilst the other 40 per cent identified the cultural ideal as their own (super woman group). Whilst all those in the wise woman group scored in the non-eating disordered range for the EAT, all but one of those in the super woman group scored within the eating disordered range. It appears then that the extent to which females endorse and identify with cultural expectations of femininity could have consequences for their body image and be a predictor for eating disordered behaviour.

Messages received from parents, mothers in particular, have also been shown to have an effect on body dissatisfaction and a drive towards becoming thinner in both girls and boys (Wertheim, Martin, Prior, Sanson & Smart, 2002). In this study mothers' dieting behaviour was also noted to have an effect on daughters' drive for thinness in girls who had begun menstruating, but not for those who had not.

Rosenblum and Lewis (1999) found that girls became increasingly dissatisfied with their bodies between the ages of 13 and 18. This did not apply to the male sample. What is it that makes adolescent girls in particular so susceptible to disorders of body image?

As noted earlier, adolescence is a time when individuals become increasingly aware of their own bodies and the changes taking place in them. This awareness is accompanied by the young person entering into the period of formal operational thought accompanied by increasing pressure to fit into a peer group. This combination gives girls the ability to scrutinise their bodies in a cultural context and brings with it a heightened fear of not conforming to what are perceived as group and cultural norms.

Cultural messages about the female body are not solely constrained to what weight is desirable, but include other aspects including breast size, complexion, skin colour, and more (Wolf, 1991 & Brumberg, 1997). Cultural norms for women idealise a prepubescent look: being thin, with an immaculate complexion and hairless legs and underarms. For boys the message is different: although pubertal changes are just as confusing and difficult to get used to, increased muscle bulk, hair and a deepening voice are all desirable in an adult man. Women are much more likely to be defined by the way they look than men, who are more likely to be defined by what they do. Whilst men are represented in popular culture as being able to achieve success and happiness through thought and action, women are often portrayed as gaining these things by force of beauty (Wolf, 1991). Young women are thus in a position where they are becoming increasingly aware of the level of scrutiny to which their bodies are subjected at the same time that their bodies start to move away from what is defined as beautiful.

Objectification theory (Fredreckson and Roberts, 1997) argues that throughout adolescence social standards are internalised and that women begin to view their own bodies from an observer's standpoint. This leads women to become preoccupied with their own bodies as their bodies become something to act upon and perfect, a project. This applies to all women, as the social definitions of beauty are so wide

that they can all be classed as deviating from them in some way. Objectification is thus ultimately time consuming and anxiety provoking, as standards are by their nature unobtainable.

Research looking at the prevalence of dieting found that 52 per cent of a sample of 1268 adolescent females reported having started dieting before the age of 14 (Johnson, Tobiu and Lipkin, 1989).

1.1.6 Emerging Difficulties in Adolescence.

Adolescence is associated with the emergence of psychiatric problems, or intensification of existing ones in both sexes, but it is also a turning point in the gender distribution of these difficulties (Carr, 1999). Adolescent girls are more likely to suffer depression, anxiety related problems and eating disorders such as anorexia nervosa and bulima nervosa than their male counterparts (Carr, 1999). They are also at increased risk of self-harming behaviour. This spread of difficulties is similar to that present between the sexes throughout adulthood until old age. It is also a time when girls' performance academically loses its previous advantage over boys'.

Depression is possibly the most common psychiatric disorder in the adult population, with at least 12 per cent of people suffering from depression severe enough to require treatment at some point in their lives, the rate among women being almost twice that among men (Fennell, 2001). In pre-adolescents the prevalence of depression ranges from 0.05 to 2.5 per cent with the spread being equal between boys and girls. In adolescent samples the prevalence jumps to between 2 to 8 per cent bearing a similar sex distribution to an adult sample (Carr, 1999). Main features of depression, as defined by DSM-IV (American Psychiatric Association, 1994) include: depressed or irritable mood; diminished interest or pleasure in most daily activities; significant weight loss or gain; insomnia or hypersomnia; fatigue or loss of energy; feelings of worthlessness or guilt; poor concentration or indecisiveness; recurrent thoughts of death, suicidal ideation or suicide attempts. Depression is often a recurrent condition

and young people who experience it are more likely to have further incidences of depression as adults (Carr, 1999).

Eating disorders are classified in DSM-IV (American Psychiatric Association, 1994) under anorexia nervosa and bulimia nervosa. Both are associated with extreme concerns regarding weight and shape, with self-evaluation being unduly influenced by these factors. Bulimia nervosa is characterised by episodes of binge eating followed by compensatory purging behaviour including vomiting, the misuse of medications such as laxatives, fasting or excessive exercise. Anorexia nervosa is associated with a refusal to maintain body weight above minimally normal weight for age and height and amenorrhoea (lack of periods) in post menarcheal girls. Eating disorders have serious medical implications, especially in adolescence when lack of nutrition has potentially life long consequences. They also have the highest mortality rate of common psychiatric disorders, due to a combination of high suicide risk, starvation and fatal arrhythmia due to effects of starvation (Stice and Shaw, 2002).

Carr (1999) reports that about 3 to 4 per cent of the adolescent female population suffer from eating disorders, the female:male ratio for anorexia nervosa being 9:1. This is a higher proportion of females than in the pre-adolescent population, where the female:male ratio is 4:1.

In a review of studies, Ollendick, King and Muris (2002) noted that generalised anxiety disorder, separation anxiety and simple phobias were the most commonly diagnosed anxiety disorders in children, with social phobia, agoraphobia, panic disorder and obsessive compulsive disorder being more common in adolescents. Carr (1999) notes that most of these problems are reported to be more common in females than males, although the gender ratios for each disorder tend to vary from study to study.

Self-mutilation, most commonly involving razor cuts to the wrists and forearms, is mainly associated with female psychiatric inpatients, the prevalence amongst adolescent samples being around double that of a cross-section of ages (Darche,

1990). Middle to late adolescence is the most common time that individuals first engage in self-mutilating behaviour (Suyemoto, 1998). Self-mutilating behaviour is most commonly associated with severe personality disorders, although Suyemoto (1998) argues that this is likely to be as a result of most studies being conducted with inpatient populations. There is evidence that a reasonable amount of self-mutilating behaviour takes place in the general population and it has also been found to be associated with other psychiatric disorders such as major depression, minor depression, dissociative identity disorder, obsessive compulsive disorder, alcoholism and substance abuse, eating disorders, schizophrenia, anxiety disorders and adjustment disorders (Suyemoto, 1998).

Most adolescents will experiment with drugs and alcohol to some extent (Carr, 1999). The presence of psychological difficulties increase the likelihood that substances will be misused along with an increased chance of the individual taking part in other risky behaviours such as unprotected sexual intercourse. For girls this can have consequences for the future such as unwanted pregnancy and the risk of foetal alcohol syndrome for their children. There is also an increased risk of traumatic experiences such as assault, rape or injury associated with alcohol and substance use which can in turn lead to psychological difficulties like post traumatic stress disorder (PTSD) (Carr, 1999).

1.2 Menstrual Meanings and Experience

> No sooner does her pubic hair appear than she has to learn how to obliterate it. Menstruation must be borne and belied. She has been so protected from accepting her body as sexual that her menstruation strikes her as a hideous violation of her physical integrity, however well she has been prepared for it. This is the time when she will reap the fruits of the whirlwind. All her conflicts come home to roost.
>
> (Greer, 1973)

Germaine Greer's statement strongly articulates several of the negative sociological elements that have been associated with puberty for the adolescent girl, her stance being that it is the context in which an individual gets to know her body that may

lead to difficulties, rather than the nature of the body in itself. She touches on three key points, firstly that adolescence for girls is a time when they learn of the need to exert control over their bodies, secondly that certain elements of their bodies are anti-social and should be hidden and thirdly that messages that girls receive at this time can be confusing and conflicting. This section looks at some of these arguments in the context of both sociological and psychological literature on menstruation, in an attempt to explore the experience of menarche and its impact on the adolescent's development towards womanhood.

1.2.1 Sources of Information for the Developing Woman

Ruble and Brooks-Gunn (1982) have argued that the event of menarche is the strongest symbol of the move from child to woman in puberty, and that what girls learn at menarche is likely to endure.

An adolescent girl's first menstruation is a new and definite event. It does not happen gradually like other changes in puberty: one day it is not there, and the next day it is. Brooks-Gunn (1990) has found that preparation for this event is important in terms of how it is experienced, unprepared girls tending to have more negative experiences than those who are well informed. Information about menstruation can come from a variety of sources including family, friends, the media and educational material. In 1982, Ruble and Brooks-Gunn found that mothers tend to be the primary source of information about menstruation, generally being the first person to broach the subject with their daughters. They found that girls who got their first period did not tell as many female friends as they had expected to, the majority telling none initially.

Investigation of messages received from mothers identify that girls are increasingly well prepared for menarche, few being in the position of their mothers and grandmothers who had no or little warning of the event (Costos, Ackerman and Paradis, 2002). Content analysis of 138 women's responses to questions about their experience of menarche revealed that the number of negative messages passed on from mother to daughter at the time of menarche were greater than the number of

positive messages (Costos, Ackerman and Paradis, 2002). Messages received related to taboo; secrecy; veiled messages about sexuality such as 'you're a woman now and you have to be careful', although this was not always accompanied by an explanation of what to be careful of; having to 'grin and bear it'; messages about the mother not feeling ready for it such as 'I'm not ready for you to grow up yet' and discussion about sanitary products, often accompanied by no other type of discussion. The 'grin and bear it' message was associated with the most negative feelings from daughters towards their mothers, the authors suggesting that it led to feelings of being dismissed or misunderstood (Costos, Ackerman and Paradis, 2002).

If girls are not initially talking to anyone but their mothers about their periods then what other sources of information are they likely to access? Simes and Berg (2001) have suggested that adverts for sanitary products may be an important source, with girls being able to look at them alone without embarrassment. They conducted a content analysis of 200 adverts in women's magazines in order to identify the main messages they carried. They found that the main thread throughout these adverts was to play on adolescent insecurities associated with menstruation, emphasising the importance of avoiding embarrassment caused by potential leaks, stains, or others finding out an individual's menstrual status, the 'need to conceal at all costs is hammered home'. The authors argued that these adverts put forward the view that menstruation is unclean and antisocial, along with a message that this state of being unhygienic extended to women outwith the time of their period. Adverts implied that their products could, and should, be used every day of the month in order for the wearer to remain 'fresh'.

Another source of information available are the educational pamphlets available to girls from schools, doctors or most often mothers. A study on these pamphlets from the 1930's up to the 1990's (Erchull, Chrisler, Gorman and Johnston-Robledo, 2002) found the main themes were similar to those found in product advertisements, relating to the importance of remaining 'fresh' and avoiding 'accidents' where menstrual fluid escapes or stains. Like the information obtained from mothers, the messages tended to be negative rather than positive with hygiene, cramps, secrecy and moodiness being the main topics. Eruchull et al. (2002) noted that there was a

general absence of discussion about emotional concerns. This was a US study, where it is noted that the menstrual product industry is the main source of educational pamphlets given out to girls during puberty. No British study was available, but a look at the leaflets distributed to the girls in the present study, published by the Health Education Board for Scotland (HEBS), found that similar themes seemed to be apparent although there was an acknowledgement of the emotional aspect of menarche, with suggestions that speaking to others about difficult of confusing feelings may be helpful.

Information being received by adolescent girls about this event in their lives then mainly appears to revolve around the need for keeping clean, using the right products and ensuring that no one else finds out about your menstrual status. The need to control and deny what the body is doing in order not to conflict with social expectations is central in all these messages. Unger and Crawford (1992) describe the lengths that school girls will go to in order to maintain this secrecy by 'putting the maxipad up a sleeve; tucking it into a sweatshirt; of slipping a tampon into a sock'.

Simes and Berg (2001) noted in their study that the taboo attached to menstruation and the general lack of discourse in society as a whole means that sources of information, such as adverts, that are available are likely to play a particularly important role in shaping attitudes.

Delaney (1988) has pointed out that there is little portrayal of menarche in popular culture, it generally being neglected in comparison to other aspects of puberty or male pubertal development. It is certainly not an issue that is often raised in coming-of-age movies and literature, where male bodily fluids are discussed in a social context (films such as 'There's Something About Mary' and 'American Pie'), menstruation is rarely mentioned. As a result, initiation into the reality of the emotional and social aspects of menstruation are often not tackled until it actually happens. The taboo element may also mean that an individual's usual coping strategies, such as talking things over with friends or family, feel closed to her.

Authors of the above studies (Brooks-Gunn, 1990; Costos et al., 2002; Simes and Berg, 2001; Erchull et al., 2002) also noted that menarche is often discussed in mainly negative terms, the more positive elements often being ignored. Ruble and Brooks-Gunn (1982) found that feelings associated with menstruation amongst adolescent girls tends to be broader than this, including both positive and negative feelings, and that the majority of those reaching menarche react with a mixture of both positive and negative feelings, a lot of girls reporting feelings of both anxiety and excitement. Menarche was also reported as less negative and painful than they had expected it to be. They also found that although girls were initially reticent to discuss the issue, they were more likely to with increasing experience, the main topics of conversation revolving around coping with practicalities and managing pain or mood. Experience also seems to bring a more balanced view, recognising both the disruptive and natural elements of menstruation (Brooks-Gunn & Ruble, 1980). There is also some evidence to suggest that adolescent girls cope with stressful events better post menarche, Brooks-Gunn (1990) suggesting that this may be to do with increased freedom at menarche and a greater support network of friends. As reported in an earlier section, adolescents tend to socialise with those who are at a similar developmental stage: reaching menarche at a similar age to one's peers may place relationships in a sharing and bonding context.

Unfortunately the converse may also be true, with those starting early or late feeling excluded (Ruble and Brooks-Gunn, 1982). There is a fair amount of literature looking at the effect of puberty and menarche that is out of time with the peer group. Research has produced a mixed picture. Some studies have found a link between early menarche and psychopathology (Harlow, Cohen, Otto, Spiegelman, and Cramer, 2002; Kaltiala-Heino, Kosunen and Rimpela, 2003). However it is not clear whether early menarche causes these difficulties or vice versa. One study found early menarche to be associated with a complex picture of adverse childhood experiences, the most important of which appeared to be childhood sexual abuse (Romans, Martin, Gendall and Herbison, 2003). Other studies have found no association between early menarche and future difficulties (Ackard and Peterson, 2001; Bisaga, Petkova, Cheng, Davies, Feldman and Whitaker, 2002). Bisaga et al.

(2002) found that early maturers showed an increase in scores on the BDI, Leyton Obsessive Compulsive Inventory – Child Version and the Eating Attitudes Test. By high school however, when their peers had physically caught up with them, this effect had disappeared. They also found that for all girls the first year after menarche was associated with high scores on all measures. This did not persist into the second year of menstrual experience. Late menarche was associated with depression linked with feeling different from peers.

1.2.2 Difference

Given the paucity of public discussion regarding menstruation, it is reasonable to assume that much of what is learned about the social implications of menstruation is acquired at menarche and with subsequent experience.

Pubertal changes are associated with a certain level of teasing and taunting in the playground for both sexes. Laws (1990) and Delaney (1988) have both suggested that such teasing in the case of menstruation carries messages regarding the status of women in the social hierarchy. By studying the jokes and banter that surround menstruation they have noted that these are usually derogatory and imply a sense of the menstruating women as both inferior and different. They argue that these messages reflect attitudes that society holds as a whole.

The Tampax Report, a major study of North American attitudes towards menstruation published in 1981, found that one quarter of their sample thought that women cannot function normally at work during menstruation, one half thought that a menstruating woman should not have intercourse, one third that it affects women's thinking ability, one third that they should restrict their physical activity and one quarter thought that menstrual pain was all in a woman's head (Delaney, 1988).

A more recent study exploring the attitudes of American college men and women found that both sexes perceived a menstruating woman more negatively than a non menstruating woman, although the effect was greater for men (Forbes, Adams-Curtis, White and Holmgren, 2003). Additionally, men saw the menstruating woman as annoying, unreasonable and less nurturing. Women were more likely to give her

some positive qualities such as being more trustworthy, stronger and maternal. Women also rated the menstruating woman as more feminine. This was not the case for men.

A similar study (Roberts, Goldenberg, Power and Pyszczynski, 2002) looked at different reactions toward a woman who either dropped a hair clip or a tampon out of her bag. The woman in the tampon condition was viewed as less competent, less likeable and participants sat further away from her in the waiting area. In this study, the participants who had seen the woman drop the tampon also scored higher on measures of objectification of women in general. Interestingly, this effect was only apparent for those who scored as having polarised gender role orientations as measured by the Bem Sex Role Inventory.

Attitudes towards menstruating women would thus appear to be less than favourable, at least within the North American population. It is then not surprising that memory work narratives have found that menarche is a time when many women report a sense of realisation that their bodies, and therefore themselves, were fundamentally different from the 'normal' population in a way that they are viewed as deviant in some way (Koutroulis, 2001).

A number of authors have reasoned that within society the dominant population defines what is and is not 'normal' and acceptable, and that within our society that dominant group is white and male (Greer, 2000; Delaney 1988; Kerkham, 2003; Shuttle and Redgrove, 1994). Anything that singles out an individual as different from this norm is labelled deviant and menstruation falls into this category on a number of counts. It not only involves a bodily fluid that is different but, as illustrated by these studies on attitudes (Roberts et al. 2002; Forbes et al., 2003), also involves a fluctuating pattern of moods.

Unlike men, women's hormonal life changes throughout the month. This difference is well illustrated by Katharina Dalton (1988) in her book on coping with PMT, in which she has two graphs illustrating male and female hormonal patterns. The male one is of one perfectly straight horizontal line, where as the female one is an

interwoven pattern of several different lines rising and falling. Along with it is an explanation of how women experience different strengths of feeling at various points in the month. In Dalton's book (1988) the emphasis is on managing difficult, aggressive moods (mainly by hormone treatment). Shuttle and Redgrove (1994), however, see this in a different light, arguing that these changing emotions only encumber women when they are asked to fit their cyclical bodies into a routine that suits the linear male one. Authors (Griffiths, 1999; Shuttle and Redgrove, 1994) have identified that women display a variety of strengths of skills at different times in the cycle, along with fluctuating aspects to their sexuality, feeling more nurturing, receptive or assertive at various stages. Shuttle and Redgrove (1994) argue that these fluctuations are looked for and described as weaknesses by society (backed up by medical science), instead of describing phases of creativity and assertiveness as strengths. Delaney (1988) has also argued that which emotions are seen as weaknesses are also defined by society, claiming that society cannot cope with the aggressive phase of women's cycles, therefore labelling them as abnormal.

In a review of literature on women's reproductive lives, Matlin (2003) has expressed concern that both the popular media and psychological researchers seem to be guided by these social beliefs about women's difference. She cites two main biases in examining issues relating to women, the 'woman as problem' bias and the 'biology as explanation' bias. A study looking at women's attributions for their positive and negative mood states suggests that women themselves may share these presumptions (Bains and Slade, 1988). It was found that negative moods related to the premenstrum were almost always attributed to health factors, as opposed to negative moods experienced at other times, which were causally attributed to work or personality. Positive moods were attributed to environmental and lifestyle factors. Bains and Slade (1988) suggest that if emotions relating to the menstrual cycle are viewed as biologically driven they could intensify premenstrual symptoms due to a sense of powerlessness to change them.

Shuttle and Redgrove (1994) argue that for the adolescent girl these messages will be interpreted as meaning that her body is something which needs to be modified and controlled, and with few messages about her cycles normality or regularity it may

also initially be quite disturbing. How does an adolescent girl who is in the process of shaping her identity incorporate the reality of fluctuating emotions into a societal model of herself which regards anything deviating from constancy as not normal? Interestingly, Brooks-Gunn and Ruble (1980) found that girls who had just started their periods tended to deny any effects of menstruation on moods more than an adult college sample. It may then be that the answer to this question is that one solution is simply not to acknowledge fluctuating emotion.

The idea that society sees the female body is essentially out of control in its natural state and therefore in need of being controlled throughout the cycle is discussed by Laws (1990). She argues that another implication of this is that women are, by their very existence, somehow offensive or dangerous to other people. That they can have a powerful effect on others without any intention on their part, be it by offending them with reminders of her menstrual status or by being uncontrollably emotional. In her study on men's attitudes towards menstruation she notes that men will claim to just 'know' when a woman is menstruating without being told. Laws (1990) argues that this has an undermining effect on women's efforts to keep menstruation hidden, keeping them in a constant state of anxiety to conceal, but introducing an element of doubt, that perhaps it is, in fact, a losing battle. This argument is similar to one made by Wolf (1991) and touched upon in the section on body image. She talks about the anxiety created in women that they must spend effort and money to ensure they are beautiful, the hidden message being that if she should slip up only once, her 'ugly' secret would be out. The argument of both authors (Laws, 1990; Wolf, 1991) is that these conflicting societal messages about the body keep women in a state of anxiety, which is disempowering.

1.2.3 A Woman Now

Menarche is a time when the developing girl may well be presented with the message that she is now a woman, and there are meanings inherent in this statement that may not relate to her directly through menstruation. Costos et al. (2002) found, when looking at women's recollections of menarche, that a lot of the women remembered being told that they were 'women now', this assertion coming with a number of

associated messages. Common co-messages being that the mother was not emotionally ready for this change or that it meant that the girl now had to 'watch out' or 'be careful'. In a study examining how menarche impacted on the sex-role identity and body image, Koff et al. (1978) tested 87 adolescent girls twice within the space of six months in order to identify any differences between those who had and had not reached menarche within this time period. It was found that those who had reached menarche showed an increased awareness of themselves as female along with increased satisfaction with feminine body parts, suggesting that the event of menarche was pivotal in their identification of themselves as female, along with comfort with this new found awareness.

There is some evidence that menarche also impacts on how other messages about female behaviour are received. A study looking at adolescents' eating and weight related values found that mothers' dieting behaviour had an effect on adolescent girls' drive for thinness, and bulima subscale scores in the eating disorders inventory only for those who had reached menarche (Wertheim et al., 2002).

Delaney (1988) has pointed out that being told that one is a woman at the age of twelve may be a pretty daunting experience, especially if the experience of menstruation is accompanied with messages about how being a woman requires a certain level of control and taking responsibility for one's own body and its impact on others. In addition, there are a number of societal expectations about women's bodies, and being told one is a woman may suggest that one should conform to these. These are increasingly ubiquitous in a society where images on TV, billboards and computer screens surround us, portraying thinness as the feminine ideal. As menarche is associated with an increase in fat, the adolescent girl is thus essentially told that she is a woman at the very moment at which her body starts to defy female bodily ideals (Brooks-Gunn, 1990). A number of authors have argued that the thin ideal is an attempt by society to deny women's sexuality that is inherently linked to body fat (Wolf, 1991; Orbach, 1978;Wooley, 1994). There are similar themes in feminist literature concerning control of the body with regard to both menstruation and body fat, as both are seen as being defined as anti-social. Much of this literature asserts the claim that women, at puberty, are encouraged to see their bodies as a

project which needs to be perfected and acted upon, by keeping it clean, thin and hair free, instead of a body to live inside and act through (Brumberg, 1997).

Studies (Rempel and Baumgartner, 2003; Roberts, 2004) have shown that more balanced views of one's own sexuality seem to be associated with more positive feelings towards menstruation. In a study looking at the attitudes of 144 female college students, comfort with menstruation was found to be significantly correlated with comfort with personal sexuality (Rempel and Baumgartner, 2003). A recent study by Roberts (2004) found that women whose internalised view of themselves was a sexually objective one had more negative attitudes and emotions regarding their own menstrual cycles, including disgust and shame. Disgust has also been associated with attitudes towards body fat (Fallon et al., 1994). Both menstruation and body fat, symbols of female sexuality, thus seem to be associated with a strong aversive emotion for some people. Disgust is thought to be strongly related to cultural values, the argument being that those who subscribe most to social standards are also more disgust prone (Rozin and Fallon, 1987). The extent to which social standards regarding menstruation are internalised may therefore bear a relationship to associated feelings of disgust towards menstrual functioning and sexuality.

This may be pertinent with regard to women's mental health, as it has been argued that disgust with the body and sexuality plays an important part in the development of eating disorders (Fallon et al., 1994). Research looking at attitudes towards sexuality in anorexic women found a significantly higher fear and disgust of pregnancy and sexuality in an anorexic group compared to a normal sample. They noted that this effect seemed to only apply to a proportion of the anorexic sample rather than the whole sample. This proportion increased however, as the group started to gain weight through treatment.

Greer's statement at the beginning of this discussion asserts that as women's sexuality is denied, a reminder of it, in the form of menarche, contributes to conflict within the adolescent girl. This was written in 1973, and it might be argued that the role of women in society has changed a great deal in the last 30 years, the portrayal of women frequently being in a sexual context. In a historical study of how

adolescent girls' bodies have been viewed, Brumberg (1997) writes that sexual objectification of women appears to be taking place for women of an increasingly young age. She suggests that although the sexual revolution of the 1970's and 80's has allowed women to enjoy a much more open attitude towards sex, the other side to this is increasing pressure on girls to become sexually active, often at a time when they are not emotionally ready for this step. She associates this with an increasing incidence of under age sex and date rape within North American schools. She notes that sexual activity at this age is rarely the mutually enjoyable event that sexual liberation wished to achieve, girls often feeling coerced, or taking part in sex as a way to be seen as socially accepted or to keep a boyfriend. A study looking at the impact of sexual activity on self reported depression in 17,082 Finnish adolescents found that both boys and girls who reported being sexually active were found to be significantly more depressed than their non sexually active counterparts (Kaltiala-Heino, Kosunen and Rimpela, 2003). Sexual activity also brings with it the need for women to take responsibility for her body, this time in relation to the possible eventuality of becoming pregnant.

If to be told that to menstruate is to become a woman, how ready is the 12 year old girl to take on these responsibilities and representations of herself, and how equipped is she emotionally and cognitively to select wisely which aspects of these messages about women she is willing to internalise as her own? As we saw in the body image section, the extent to which adolescents take on society's unrealistic expectations as their own may have an impact on their mental well being (Steiner-Adair, 1990). Perlick and Silverstein (1994) suggest that adolescence can be a time of ambivalence over gender. They associate this with developing girls being made physically aware of their own gender, and learning about expectations and roles of women from watching how mothers and other women are treated and related to at home and socially. They argue that the process of individuation from the mother can be particularly difficult when the mother has a more traditional feminine role, and the daughter is moving in a less traditional direction, perhaps by pursuing a career. If a appropriate female role model is not available it can lead to negative and rejecting feelings about her own gender and conflict with the mother, as she struggles to

identify female qualities she can identify with and internalise as her own (Perlick and Silverstein, 1994).

Through representations of women held by society which pertain to ideals of weight, shape and beauty accompanied by the reality of her reproductive/menstrual status and the connotations that this has for how she is viewed, women's sense of gendered self appears to be inextricably linked to her sense of her body in a way that men's is not.

> With puberty, the future not only approaches; it takes residence in her body; it assumes the most concrete reality. It retains the fateful quality it has always had. While the adolescent boy makes his way actively towards adulthood, the young girl awaits the opening of this new, unforeseeable period, the plot of which henceforth is woven and towards which time is bearing her.
>
> De Beauvoir (1974)

1.3 Rationale for Current Research

Adolescence is recognised as a turning point in the way that psychological difficulties are distributed between genders (Carr, 1999). Adolescent girls being more likely to suffer from depression, anxiety related problems and eating disorders in comparison to their male peers (Carr, 1999). The pattern of difficulties therefore becomes similar to that present between the sexes through adulthood.

Body image concerns have been associated with a number of psychological difficulties in adolescent girls and women (Fallon et al., 1994;Carr, 1999) from eating disorders to depression and are thought to have adverse effects on a sense of well-being and quality of life (Striegel-Moore and Franko, 2002). This is of particular concern with regard to adolescent girls, as the development of a sense of self is thought to be much more connected to internal representations of the body in women than it is in men (Brooks-Gunn, 1990).

It has been argued that menarche, as such a definite event, may be psychologically significant as a marker of the move from girl to woman (Ruble and Brooks-Gunn,

1982). Adolescent girls seem to become more sensitive to receiving messages about how other women around them relate to their bodies post menarche (Wertheim et al., 2002). Koff et al. (1978) found that the event of menarche appears to be accompanied by an increased identification with one's own gender and a greater comfort with specifically feminine parts of the body. Bisaga et al. (2002) found a different picture, however, with the first year after menarche being associated with increased scores on a number of measures of psychopathology including mood and eating attitudes. Studies are scarce, however, and there is not a clear picture with regard to how menarche impacts on the adolescent girl's sense of well-being and attitudes towards her own body, or whether in fact it has any impact at all.

Brooks-Gunn (1990) has suggested that the meanings that an adolescent girl gives to this pubertal change are likely to have the greatest impact on how it is experienced and consequently how she will construct her future sense of self as a menstruating being. There is a reasonable amount of sociological literature looking at the meanings, attitudes and emotions that are associated with menarche within society. Much of this identifies overriding negative themes in how menstruation is viewed socially, such as it being polluting and disgusting and being associated with conflicting messages, exclusion from society and denial of female sexuality. For an adolescent girl going through menarche, however, the event is likely to be associated with a mixture of emotions, both positive and negative (Ruble and Brooks-Gunn, 1982). Research suggests that more positive and balanced views of menstruation tend to develop with age and experience of being a menstruating woman (Roberts, 2004; Brooks-Gunn, 1990).

Steiner-Adair (1990) found that the extent to which adolescent girls are able to distinguish their own, often more realistic and balanced, ideals of femininity from that of societies may have an impact on their predisposition to mental health problems such as eating disorders. It seems likely then that an adolescent's perception of social attitudes towards menstruation may similarly be associated with their sense of well-being, with those who unconditionally take on some of societies more negative messages experiencing lower satisfaction with their bodies. Ruble and Brooks-Gunn (1982) found that adolescents who have recently passed through

menarche, seem to have a paradoxical pattern of attitudes. Adolescents reported that they perceived menstruation as more debilitating than older women while at the same time denying that it has much of an effect on people's moods and behaviours. Laws (1990) has also argued that unrealistic and contradictory messages about menstruation can lead to a sense of disempowerment and anxiety. There is, however, no research looking at whether this apparent conflict does have any impact on a girl's well-being.

Research into whether attitudes related to menstruation acquired at menarche, relate to body image, may therefore be useful in informing preventative measures for future psychological difficulties. This is not an area of research that has as yet been explored. There has also been little research into the more positive aspects of menstruation and whether these develop throughout adolescence and with subsequent experience of menstruation. Brooks-Gunn and Ruble's (1982) work suggests that women who have been menstruating for a while report more balanced and realistic views of their menstruation, along with a greater sense of it being natural. Women themselves also seem to see menstruating women in a more positive light than men, bestowing them with attributes such strength, trustworthiness and being maternal.

Rempel and Baumgartner (2003) found that women who felt more comfortable with their own sexuality also showed more positive attitudes towards menstruation. In adolescence, however, actual participation in sexual activity appears to be related to lower self-worth (Kaltiala-Heino, Kosunen and Rimpela, 2003). It would seem reasonable to predict that those individuals who possess a more positive attitude towards menstruation in terms of its social acceptability will also feel more comfortable with it as a natural event and be more likely to have positive feelings towards their bodies in terms of sexual attractiveness and strength. Conversely more negative attitudes towards body and menstruation such as feeling that it is debilitating and bothersome are likely to be associated with less healthy attitudes towards the body such as feelings of disgust and overvaluation of weight and shape in defining the self. These attitudes are also likely to be associated with lower mood and sexual activity. It would also be expected that a tendency towards the more

positive attitudinal aspects of menstruation and body image would be negatively associated with the more negative ones.

The majority of research and writing in the field of menstruation and body image has been conducted out-with the UK, much of that reported in this introduction coming from North America, all of it pertaining to westernised countries. It is important to note that when looking at socially constructed concepts such as attitudes and experiences these are likely to vary considerably between cultures. It is therefore useful to establish a picture of the attitudes and feelings of adolescent girls within a section of our society, if we are to relate research to those individuals with whom we work.

The aim of this study is to explore relationships between both positive and negative attitudes towards menstruation and body in the context of how these may change with menarche and ensuing experience of menstruation.

1.4 Research Aims

1. To identify if there is a change in how girls feel about their bodies and themselves with the onset on menstruation.

2. To identify if conflicting attitudes towards menstruation in girls who have reached menarche leads these girls to be more likely to report lower mood and lower satisfaction with their own bodies.

3. To identify if there is a drop in mood with the onset of menstruation which subsequently improves with experience, this being related to girls feeling increasingly more comfortable with menstruation as a natural and acceptable part of themselves.

4. To identify the pattern of positive and negative attitudinal concepts towards the body and menstruation and how these relate to mood and sexual activity.

1.5 Hypotheses

1. Girls who have reached menarche will report different attitudes towards their bodies to those who have not yet reached menarche.

2. Girls who have reached menarche and report higher scores on the measure of how debilitating they feel menstruation to be coupled with higher scores on the measure of denial of the effects of menstruation will report lower mood and more negative attitudes towards their own bodies.

3. The event of menarche will be immediately followed by a drop in mood, accompanied by a drop in measures of how natural and socially acceptable menstruation is thought to be. Measures of mood will return to premenstrual levels after a period of experience, measures of naturalness and social acceptability will increase to above premenstrual levels following a period of experience.

4. Variables measuring the more positive aspects of menstruation and attitudes toward one's body will be negatively related to variables measuring the more negative attitudes towards menstruation, body and mood. Sexual activity will be associated with more negative attitudes towards the self and the body.

2 Methodology

Discussion with the head of the local ethics committee confirmed that as the proposed study was to involve a normal rather than an NHS population, it did not need to be considered by the committee. The Head of Schools for the Borders was contacted regarding the study and he suggested contacting the Rector for each secondary school individually.

Rectors for all secondary schools in the Borders were approached initially with the research proposal. Two schools were initially very enthusiastic and so effectively self-selected themselves for the study. Meetings took place between the researcher and the guidance staff at each of the schools in order to establish a plan that suited both school and researcher regarding data collection and ethical issues.

2.1 Participants

The proportion of girls recruited from each school was quite different. In one school the whole of years 1 to 4 were invited to take part. In the other school a subsection of girls from years 1 to 4 were invited to take part, the selection of those asked being decided by where classes fell in the school timetable for convenience of administering the questionnaire.

The only exclusion criterion was that girls needed to be able to read and complete the questionnaire independently, thus excluding those with difficulties or disabilities which prohibited this.

At least a week prior to administration of the questionnaire, all girls were given an information letter to take home to their parents or guardians regarding the study (see appendix). This letter included a tear-off section to be returned to school should parents not wish their child to take part in the study. A number of these were received ranging from 8 to 21 opt-outs per age group. Four girls also decided to opt-out on the day of administration of the questionnaire, either by leaving prior to the questionnaire being handed out, or by leaving the questionnaire blank.

2.2 Procedure

Participants completed questionnaires in a variety of different sized groups ranging from a group of 6 in a small classroom to 72 in the school examination hall. In all cases, care was taken to make sure that the respondents were spaced out in an effort to minimise discussion and ensure that their responses remained anonymous.

Prior to completion of the questionnaire pack, girls were given an information letter and this was talked through with them. Specific instructions on how to fill in the various sections of the questionnaire were given and it was stressed that there were no right or wrong answers to the questions. Participants were then given the opportunity to ask any questions they might have. At this point they were reminded that they could decide not to take part. They were also reassured that they could opt-out of filling in the questionnaire at any time during testing. Participants were then asked to fill in a consent form, and the questionnaire was handed out. Whilst filling in the questionnaire, participants were encouraged to ask about anything they were uncertain about.

Once the questionnaires had been filled in and collected back the participants were given another opportunity to ask any questions they had about the study. They were reminded of where to get support should the survey have raised any concerns, and leaflets containing information regarding menstruation and pubertal issues were pointed out and left for them to pick up should they want them.

2.3 Ethical Considerations

Consideration was given with respect to the following ethical issues as outlined in the British Psychological Society's Code of Conduct (BPS, 2000):

Informed Consent: Consent was obtained from the participants themselves and their teachers. The heads of guidance in both schools had looked over the questionnaire pack prior to giving consent and the procedure for administration of the questionnaire had been discussed. The participants were given an information letter

that they were also talked through and were given the opportunity to ask any questions before giving consent.

Withdrawal from the Investigation: It was made clear to participants before the questionnaire was handed out that they were free to withdraw from the study at any point in the proceedings.

Confidentiality: The questionnaire was anonymous, having no means of identifying the respondent on the form.

Debriefing: Participants were given another opportunity to ask questions after filling in the questionnaire. Participants were reminded of the information in their information letters regarding what to do should they have any questions about having taken part in the study, or if participation had raised any concerns. The letter included information on how to contact the researcher. Participants were reminded to take this letter with them when they left. Information leaflets discussing issues about menstruation and puberty were also made available to be picked up as the participants left the room.

Protection of Participants: Care was taken that respondents did not miss out on any academic classes in order to take part in the study. Time for filling out the questionnaire was either taken from social education class time or physical education time. As mentioned above, contact details for the researcher were given out should participants feel any stress had been caused, or concerns been raised by taking part in the study. It was made clear prior to the questionnaire being handed out that if respondents found that filling in the questionnaire was causing them any distress they were free to withdraw at any time.

Giving Advice: Respondents were asked to put a "PIN number" on the front of their questionnaire pack. This was a number, word, or mixture of words and letters that the participant felt was meaningful to them, so that they would remember it, but that others would not be able to guess. It was explained that this gave the researcher a way of asking an individual respondent if they would meet the researcher to talk about their questionnaire later, without compromising their anonymity, as they did

not need to respond to the invite if they wished to remain anonymous. This gave the researcher a means of offering those whose responses raised serious concerns the opportunity to discuss their difficulties without breaching confidentiality.

Copies of the information letters for parents and participants and the consent form are in the appendix.

2.4 Resources

Resources for photocopying, stationery, travel expenses, postage, SPSS licence, and the purchase of licensed assessment measures were provided by the University of Edinburgh and the East of Scotland Clinical Psychology Training Course, as was funding for the principal researcher's time. Information leaflets were provided by Borders NHS Health Promotion Department.

2.5 Measures

The questionnaire pack was designed to take a maximum of 25 minutes to complete, allowing for complete administration of the questionnaire to take place in a 40-minute class period.

A full copy of the questionnaire and all measures included can be found in the appendices.

The front sheet of the questionnaire asked for general information regarding: age; height; weight; menarcheal status; age of menarche; length of time since menarche; where the respondent currently was in their monthly cycle; the regularity of their cycle; experience of pain (measured on a likert scale from "not painful at all" to "so painful I can't bear it"); information about health problems, disability and use of the contraceptive pill; and whether they were currently sexually active.

The remainder of the questionnaire comprised of the following measures:

2.6 Menstrual Attitudes Questionnaire (MAQ, Brooks-Gunn and Ruble, 1980)

The Menstrual Attitudes Questionnaire is a 39-item questionnaire consisting of statements regarding menstruation. Respondents are asked to decide to what extent they agree or disagree with the statements given. Questions measure attitudes towards menstruation in relation to five constructs, these are: menstruation as a debilitating event; menstruation as a bothersome event; menstruation as a natural event; anticipation and prediction of the onset of menstruation; and denial of any effects of menstruation. Brooks-Gunn and Ruble (1980) report that the MAQ has acceptable internal consistency and construct validity. Cronbach alpha coefficients ranging from 0.90 to 0.97 are reported. These figures, however, relate to an American college sample. A questionnaire was designed for an adolescent population by Brooks-Gunn and Ruble (1980) at the same time that this adult questionnaire was devised, but the writer of the present study was not able to obtain a copy of this questionnaire. As a result, the adult questionnaire was re-worded to allow it to be more accessible to an adolescent sample, the wording of many of the questions in the adult questionnaire being quite complex. Once it had been "translated" into adolescent English, each question was then presented to a 12-year old girl who was asked to explain her understanding of the meaning of each question. Her explanations were then checked to be close enough to the original question. Those that were not, were adjusted to fit the original meaning more accurately.

In addition to making the measure more adolescent friendly an extra section was also added, to examine the extent to which girls view menstruation as socially acceptable. This subscale was comprised of six new questions (see appendix) enquiring about issues raised in the literature (see Introduction) regarding girls' experience of the social aspects of menstruation.

Details of Cronbach alpha scores for the present study (using this modified version of the MAQ) and any items which were deleted due to a low correlation with the subscale score, forming a new variable, follows:

Menstruation as a Debilitating Event: Cronbach alpha coefficient was 0.77. Item 29 did not correlate well with the total score for this subscale. This suggests that it was not measuring the same construct as the scale as a whole. It was therefore decided to remove it from the scale. This Cronbach alpha coefficient for this new scale was 0.78.

Menstruation as a Bothersome Event: Cronbach alpha coefficent was 0.61.

Menstruation as a natural Event: Cronbach alpha coefficent was 0.61.

Anticipation and Prediction of the Onset of Menstruation: Cronbach alpha coefficent was 0.63

Denial of any Effects of Menstruation: Cronbach alpha coefficent was 0.66. Item 11 did not correlate well with the total score for this subscale, again suggesting that this item was not measuring the same construct as the scale as a whole. It was therefore decided to remove it from the scale. This Cronbach alpha coefficient for this new scale was 0.68.

Social Acceptability of Menstruation: Cronbach alpha coefficient was 0.46.

2.6.1 Ben-Tovim Walker Body Attitudes Questionnaire (BAQ, Ben-Tovim and Walker, 1991)

A number of measures were considered in relation to measuring body attitude for this study. The Ben-Tovim Walker Body Attitudes Questionnaire was chosen as result of the range and type of attitudes that it measures in comparison to other measures available. It is a 44 item questionnaire which is divided into 6 subscales measuring: feelings of overall fatness; feelings of lower body fatness; self-disparagement or disgust with the body; feelings of strength and fitness; salience, or the importance of weight and shape in the person's life; and self-perceived physical attractiveness. It was decided that concepts such as disgust with the body and feelings of strength and fitness were pertinent to meanings associated with menstruation. Other questionnaires looking at body image and attitudes tend to focus on either dissatisfaction in relation to body weight (i.e. Body dissatisfaction subscale of the

Eating Disorder Inventory, Garner, Olmstead & Polivy, 1983), or attitudes to specific body parts (i.e. The Body Satisfaction Scale, Slade, Dewey, Newton, Brodie & Kiemle).

The BAQ was developed in order to try and identify and measure those attitudes towards the body that women felt were most important to them. It was developed in South Australia using a population of women ranging from 15 to 65 years of age. Ben-Tovim and Walker (1991) report that it has acceptable test-retest reliability, construct validity and internal consistency. A Cronbach alpha coefficient of 0.87 is reported for the measure as a whole. In the current study the Cronbach alpha coefficient was 0.93. Cronbach alpha coefficients for each of the subscales follows, along with details of any items which were deleted due to a low correlation with the subscale score, thus forming a new variable:

Attractiveness: Cronbach apha coefficient was 0.67. Item 9 was removed due to its low correlation with the total score. The new scale had a coefficient of 0.71.

Disparagement: Cronbach alpha coefficient was 0.82.

Feeling Fat: Cronbach alpha coefficient was 0.93

Lower Body Fatness: Cronbach alpha coefficent was 0.57. Item 13 was removed due to a low correlation with the total score leaving a new coefficient of 0.76.

Salience: Cronbach alpha coefficent was 0.73. Item 41 was removed due to a low correlation with the total score leaving a new coefficient of 0.77

Strength/Fitness: Cronbach alpha coefficent was 0.68. Items 16 and 37 were removed due to low correlations with the total score leaving a new coefficient of 0.71.

2.6.2 Beck Depression Inventory – Short Form (BDI-Short Form, Beck, Steer & Brown, 2000)

The 21-item Beck Depression Inventory – II is widely used in both clinical and normal populations for assessing for the presence and severity of depression in both adolescents and adults. The short form consists of 7 of these 21 items and was designed to be used in medical settings as it has eliminated those items which ask about the somatic symptoms of depression which overlap with similar symptoms caused by medical disorders. The reason for its use in this study, however, was simply its length. It was felt that considering the age of some of the respondents and the limited time available to fill in the whole questionnaire pack, that brevity was important, whilst maintaining the validity of the construct being measured. The items retained measure perception of: sadness, pessimism, past failure, loss of pleasure, self-dislike, self-criticalness and suicidal thoughts. The reduced item scale is reported to correlate highly with the 21 item scale and to have good internal consistency, with a Cronbach alpha coefficient of 0.85 (Beck et al., 2000). In this study, the Cronbach alpha coefficient was found to be 0.83.

2.7 Data Handling and Analysis

2.7.1 Screening Data

The raw data from 380 questionnaires was entered into a Statistical Package for Social Sciences (SPSS) database. Accuracy of data entry was confirmed by checking a random sample of the written data sheets against the data view, and by examining minimum and maximum values, means and standard deviations for each variable.

2.7.2 Missing Data

There was some missing data remaining once all data was entered. How to treat missing data was considered with reference to Tabachnick and Fidel (1996). The majority of missing data was within the height and weight variables, where 25 per cent of cases had data missing. The result of this was that the composite of these

variables, the BMI variable had 36 per cent missing data. As a result, these variables were dropped from the analysis.

In addition, it was decided that any cases with 10 per cent or more of their raw data missing should be dropped from analysis. This comprised 9 cases. The majority of the data that was missing from this sample was within variables for the Menstrual Attitudes Questionnaire. The Mann-Whitney U test was used to check for differences between these cases and the rest of the sample. The only significant difference on any of the variables was that the 9 girls who had over 10 per cent missing data were significantly younger than the rest of the sample ($p=.013$).

Once these cases and variables had been removed, remaining missing values were replaced by means calculated from the available data on each variable.

2.7.3 Normality

Tests such as the Shapiro-Wilks test were not used to define whether the data fitted into a normal distribution, as these are too sensitive with large samples (Tabachnik and Fidel, 1996). Instead, it is suggested that histograms and normal probability plots are examined to check the shape of the distribution. Indicators of skewness and kurtosis were also examined to assess whether they were within a reasonable range.

There is some discussion in the literature regarding the robustness of parametric tests with data sets that violate assumption of normality. However, this debate is as yet inconclusive. Tabachnik and Fidel (1996) suggest that with reasonably large samples, skewness is unlikely to "make a substantive difference in the analysis" and that the risk of kurtosis having an impact on results is reduced with samples of more than 200 cases. They do, however, advise that data be transformed to fit the assumptions if possible. Transformations were carried out as follows: a square root transformation was performed on the BAQ subscale for salience; a log 10 transformation was performed on the BAQ subscale for disparagement; and a reflect square root was performed on the BAQ subscale for strength/fitness, allowing all of these to reasonably meet assumptions of normality. Transformed data are reported as such.

It was not possible to transform the data for scores on the BDI – fast screen, with this data remaining very skewed. Age did not fit assumptions for normality, showing a rectangular distribution, roughly the same number of girls having responded from each age group.

Scatter plots were generated for combinations of variables to check for linearity and homoscedasticity.

2.7.4 Outliers

Univariate outliers and their influence were explored by examining trimmed means, histograms and boxplots for each variable. These were then considered with reference to Tabachnick and Fidell (1996). They have noted that a number of outliers are to be expected in high numbers of cases and this was the case with this sample. There were a number of outliers in several of the variables. The majority of these seemed to have little effect on mean scores, were close to the existing distribution and had a minimal effect on the normality of the distribution, and so were left in the analysis.

Four cases were removed as they were outside the normal age range. These were two 11 year olds and one 17 year old. A 15 year old was also removed as she was the only premenstrual girl within that age band. As there were so few cases in these age categories it was felt that their individual scores would have too great an influence in comparison to those in the other age groups. A similar decision was made regarding a case whose age for reaching menarche was 8 years old. She was the only case in this category, and the next age up on this distribution was 10 years.

A number of extreme outliers were identified within the BDI – Fast Screen at the high end of the scoring range. As the statistical methods to be used in analysis were known to be particularly sensitive to outliers (Tabachnick and Fidell, 1996) it was thought that these extreme cases may have had an undue influence on results. It is suggested that scores above 12 on this measure can be interpreted as indicative of a severe level of depression (Beck, Steer and Brown, 2000). Although a number of cases of depression are to be expected within a normal population it was decided that

inclusion of this group may make interpretation with regard to the non-depressed majority questionable. All cases that scored above 12 on the BDI were therefore removed from the sample to be analysed. Twelve cases fell into this category.

2.8 Consideration of Redundant Variables

Degree of correlation was considered for variables measuring similar ideas in order to identify overlap between measures as opposed to association between variables measuring different constructs. Variables for age and experience of menstruation were highly correlated ($r = 0.556, p < 0.001$, 2-tailed). This was as expected for these two variables. Despite high correlation they were both left in the analysis, as they were considered to be quite different concepts. There was also a high correlation between the likert measure of pain experienced during menstruation and variables for both menstruation as a debilitating event ($r = 0.328, p < 0.001$, 2-tailed) and menstruation as a bothersome event ($r = 0.177, p = 0.004$, 2-tailed). This was as expected and it was decided to discard the likert scale, as the other measures assess a broader concept. The variables for salience (importance of weight and shape), feelings of overall fatness and feelings of lower body fatness all correlated with each other (salience and lower body fatness $r = 0.617, p < 0.001$, 2-tailed; salience and feeling fat $r = 0.719, p < 0.001$, 2-tailed; feeling fat and lower body fatness $r = 0.738$, $p < 0.001$, 2-tailed). It was decided that these variables were overlapping and it was decided to keep salience of weight and shape, discarding the other variables.

3 Results

3.1 Sample Characteristics

After data screening the sample consisted of 354 girls. Characteristics of this sample are displayed in tables 1-3.

Table 1 Sample characteristics for continuous data

	N	Range	Median	Mean	SD
Age for whole sample	354	12 - 16	14	13.73	1.24
Age for pre-menarche sample	95 (27%)	12 - 14	12	12.51	0.65
Age for post-menarche sample	259 (73%)	12 - 16	14	14.17	1.10
Age reached menarche	256	10 - 15	12	12.36	1.05
Experience of menstruation (months)	252	1 -172	23.5	22.77	16.21

As expected there was a significant difference in age between those who had reached menarche and those who had not ($z = -11.054, p < 0.001$, 2-tailed).

Those experiencing irregular menstruation had reached menarche significantly more recently than those whose cycles were regular ($z = -2.134, p = 0.033$, 2-tailed).

A number of health related difficulties were reported (see table 3.)

A previous normative study of the Body Attitudes Questionnaire (BAQ) (Ben-Tovim and Walker, 1991) had produced means for both normal (age range 15 – 65) and anorexic samples. Comparatively this sample showed similar levels of feelings of attractiveness, feeling fat and lower body fatness to the normal sample, well below levels reported by the anorexic group. They had a slightly higher score than the normal sample for disparagement, although this was still well below the score obtained by the anorexic sample. This sample placed less importance on weight and shape in their lives (salience) than the normal and anorexic samples and felt

themselves to be much stronger and fitter than the normal sample, having a score more similar to the anorexic sample.

Table 2 Sample characteristics for dichotomous data

	N	Per cent
Menarcheal Status	354	
Pre-menarche	95	27%
Post-menarche	259	73%
Menstrual Status	259	
Currently menstruating	37	14.3%
Elsewhere in cycle	222	85.7%
Type of Cycle	259	
Regular	173	68.7%
Regular but long/short	35	13.9%
Irregular	44	17.5%
Sexually Active	34	10%
Reached menarche	32	94%
Not reached menarche	2	6%
Taking contraceptive pill	15	4.2%
Sexually active	10	66.7%
Not sexually active	5	33.3%
Disability	2	0.6%

Table 3 Reported Health Problems

Health Problem	*N*
Asthma	19 (5.4%)
Epilepsy	2
Diabetes	2
Heart murmur	2
Medication for period pain	4
Medication for acne	7
Weight related difficulties	2
Eczema	5
Hay-fever	10
Headaches	2
Stomach aches	1
Injury or joint pain	5
Taking antibiotics	3

BDI Fast – Screen scores ranged from 0 to 12 (12 participants with scores above 12 had previously been removed, see Outliers section). The current sample fell within the range for minimal depression (scores 0 – 3, Beck et al., 2000). For the pre-menarcheal group 76 (80 per cent) fell within the range for minimal depression, 19 (20 per cent) fell within the range for mild depression and no participants obtained scores indicative of moderate depression. For the post-menarcheal group 169 (65.3 per cent) fell within the range for minimal depression, 76 (29.3 per cent) fell within the range for mild depression and 14 (5.4 per cent) fell within the range for moderate

depression. Post-menarcheal girls showed a significantly higher BDI score than pre-menarcheal girls ($z = -3.73$, $p < 0.001$, 2-tailed).

Table 4 BDI Fast-Screen means for pre and post menarcheal girls.

	Pre-menarche $N = 95$		Post-menarche $N = 259$		All Girls $N = 354$	
	Mean	SD	Mean	SD	Mean	SD
BDI Fast - Screen	1.89	2.12	3.07	2.90	2.76	2.76

As the version of the menstrual attitudes questionnaire used in this study had not been used on an adolescent sample before, it was not possible to compare scores with a standardised sample.

3.2 Statistical Analysis of Hypothesis 1

Girls who have reached menarche will report different attitudes towards their bodies to those who have not yet reached menarche, controlling for age.

A one-way between-groups multivariate analysis of covariance was performed in order to test differences in body attitudes between groups for those who had and had not reached menarche. Three dependent variables were used: salience of weight and shape, attractiveness and strength/fitness. As the post menarcheal group was significantly older than the pre menarcheal group it was important to establish that any differences found were not simply due to age. In order to control for age, it was entered into the analysis as a covariate. Unadjusted and adjusted means for pre and post menarche are displayed in table 5.

The variable for disparagement was left out of this analysis due to high correlations with the other variables and possible overlap with salience. Calculation of Mahalanobis distance revealed two multivariate outliers that were removed from analysis. Box's M Test of Equality of Covariance identified that the data did not violate assumptions for homogeneity of variance-covariance matrices.

Table 5 Unadjusted and adjusted mean values for dependent variables within pre and post menarcheal groups

	Unadjusted Mean				Adjusted Mean			
	Pre-menarche *N* = 94		Post-menarche *N* = 258		Pre-menarche *N* = 94		Post-menarche *N* = 258	
	Mean	SD	Mean	SD	Mean	SE	Mean	SE
Strength SQRT	2.50	.47	2.54	.51	2.68	.11	2.52	.03
Attractiveness	12.15	2.64	12.18	2.86	10.95	.61	12.23	.19
Salience	4.07	.54	4.36	.56	3.13	.12	4.33	.04

There was not a statistically significant difference between girls pre and post menarche on the combined dependent variables (F = 1.230, $p = 0.298$; Wilks' Lambda = 0.99; partial eta squared = 0.011). There was however a significant interaction effect between age and menarcheal status (F = 2.469, $p = 0.023$; Wilks' Lambda = 0.96; partial eta squared = 0.021). Results for dependent variables considered separately show that the only significant interaction was for the strength/fitness variable (see table 7). Table 6 shows that feelings of strength and fitness increase with age as they do post menarche (see table 5).

Table 6 Mean values for dependent variables within each age group

	Age 12 *N* = 72		Age 13 *N* = 82		Age 14 *N* = 95		Age 15 *N* = 73		Age 16 *N* = 30	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Strength SQRT	2.40	.50	2.53	.46	2.57	.54	2.58	.44	2.62	.52
Attractiveness	12.76	2.80	12.04	2.63	11.75	2.79	12.27	2.92	12.21	2.93
Salience	4.08	.58	4.20	.50	4.34	.60	4.44	.52	4.46	.567

When explored separately as independent variables, both age and menarcheal status showed significant differences between levels. This effect disappears when they are considered together, being explained by the interaction between these two variables.

Hypothesis 1 was therefore not upheld.

Table 7 Results for dependent variables considered separately, for menarcheal status and interaction between menarcheal status and age

		F	*p*	Partial Eta squared
Menarcheal Status	Strength SQRT	1.032	.310	.003
	Salience	.002	.964	.000
	Attractiveness	3.290	.071	.009
Interaction between menarcheal status and age	Strength SQRT	3.833	.023	.022
	Salience	2.688	.069	.015
	Attractiveness	2.669	.071	.015

3.3 Statistical Analysis of Hypothesis 2

Girls who have reached menarche and report higher scores on the measure of how debilitating they feel menstruation to be coupled with higher scores on the measure of denial of the effects of menstruation will report lower mood and more negative attitudes towards their own bodies.

A two way between groups multivariate analysis of variance was performed in order to test for an interactive effect between attitudes towards menstruation as debilitating and denial of its effects. A median split was performed on both of these independent variables in order to dichotomise them into high and low scoring groups, creating two levels within each of the two independent variables. Mean scores for these groups are shown in table 8. Again, the three dependent variables for body image used were: salience of weight and shape, attractiveness and strength/fitness. Scores on the BDI were used to measure mood.

Calculation of Mahalanobis distance revealed two multivariate outliers that were removed from analysis. Box's M Test of Equality of Covariance identified that the data did not violate assumptions for homogeneity of variance-covariance matrices.

Table 8 Mean scores on the dependent variables within low and high scoring groups for menstruation as a debilitating event and denial of effects of menstruation.

Debilitating	**High**				**Low**			
Denial	**High**		**Low**		**High**		**Low**	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Salience	4.32	.60	4.36	.55	4.19	.56	4.28	.57
Strength SQRT	2.47	.50	2.60	.48	2.47	.52	2.53	.53
Attractiveness	12.18	2.50	11.70	3.05	12.76	2.79	12.07	2.77
BDI	3.30	3.05	2.87	2.55	2.18	2.51	2.89	2.97

No statistically significant interaction was found ($F = 1.189, p = .315$; Wilks' Lambda = 0.986; partial eta squared = .014). Hypothesis 2 was therefore not upheld.

Out of interest, the same analysis was conducted on a smaller group of those who were actually menstruating at the time of filling in the questionnaire. Again, no interaction effect was found.

3.4 Statistical Analysis of Hypothesis 3

The event of menarche will be immediately followed by a drop in mood, accompanied by a drop in measures of how natural and socially acceptable menstruation is thought to be. Measures of mood will return to premenstrual levels after a period of experience, measures of naturalness and social acceptability will increase to above premenstrual levels following a period of experience.

A one-way between-groups multivariate analysis of variance was performed in order to test differences in body attitudes between groups for pre-menarcheal girls, girls who had reached menarche 0 to 6 months ago and girls who had reached menarche 1 to 2 years ago. The dependent variables were: mood measured by BDI score,

menstruation as a natural event and perceived social acceptability of menstruation. Means are shown in table 9.

Calculation of Mahalanobis distance revealed one multivariate outlier that was removed from analysis. Box's M Test of Equality of Covariance identified that the data did not violate assumptions for homogeneity of variance-covariance matrices.

Table 9 Means scores on the dependent variables for groups defined by their length of experience of menstruation.

	Pre-menarche *N* = 95		**0 – 6 months Post-menarche** *N* = 47		**1 –2 years Post-menarche** *N* = 73	
	Mean	SD	Mean	SD	Mean	SD
Natural	18.27	2.34	17.70	2.44	18.11	2.40
Socially acceptable	17.83	2.93	16.69	3.45	18.23	3.08
BDI	1.89	2.12	2.83	2.66	2.91	2.49

There was a statistically significant difference between groups on the combined dependent variable ($F = 3.052$, $p = 0.006$; Wilks' Lambda = 0.918; partial eta squared = 0.042). When the results for the dependent variables were considered separately (see table 10), significant differences between groups were found for social acceptability and mood.

Table 10 Results for dependent variables considered separately

	F	***p***	**Partial Eta squared**
Natural	.900	.408	.008
Socially acceptable	3.645	.028	.033
BDI	4.609	.011	.042

Tukey's honestly significant difference test was used to look at post hoc pairwise comparisons between group means. This revealed a significant difference between the 0 to 6 months group and the 1 to 2 years group on the measure of social acceptability ($p = .023$). The group with more experience of menstruation expressing

the view that menstruation is more socially acceptable (see table 9). A significant difference was also found between the pre-menarcheal and 1 to 2 years group on the measure of mood (p = .017). The 1 to 2 year group reporting lower mood than the pre-menarcheal group (see table 9). No significant differences were found between any other combination of groups on any of the dependent variables.

Part of this hypothesis was therefore upheld with the measure of social acceptability increasing following a period of experience. Other parts of hypothesis 3 were not upheld, however, with no significant drop in measures of mood or how natural or socially acceptable menstruation is thought to be immediately after menarche. Nor was there a significant increase in mood or perception of naturalness following a period of experience.

3.5 Statistical Analysis of Hypothesis 4

Variables measuring the more positive aspects of menstruation and attitudes toward one's body will be negatively related to variables measuring the more negative attitudes towards menstruation, body and mood. Sexual activity will be associated with more negative attitudes towards the self and the body.

Canonical correlation was performed between a set of variables that reflected positive attitudes towards menstruation and body image and a set of variables that reflected negative attitudes towards menstruation and body image, mood and participation in sexual activity. The positive variables included menstruation as a natural event, menstruation as socially acceptable, feelings of attractiveness and feelings of strength and fitness. The negative variables included salience of weight and shape, disparagement towards the body, menstruation as debilitating, mood measured by BDI, menstruation as bothersome and sexual activity. Table 11 shows a standard correlation matrix between these variables.

Table 11 Correlation Matrix

		Natural	Social	Attract	Strengt	Sex Ac	Salienc	Dispar	Debilit	Denial	BDI	Bother
Natural	*r*	1										
	p											
Social	*r*	.113	1									
	p	.034										
Attract	*r*	.122	.242	1								
	p	.021	< .001									
Strengt	*r*	-.197	-.040	-.300	1							
	p	< .001	.458	<.001								
Sex Ac	*r*	.022	-.137	-.179	.034	1						
	p	.692	.011	.001	.534							
Salienc	*r*	-.102	-.176	-.166	.112	-.097	1					
	p	.055	.001	.002	.036	.075						
Dispar	*r*	-.090	-.303	-.551	.203	.106	.524	1				
	p	.092	<.001	<.001	<.001	.050	<.001					
Debilit	*r*	.002	-.391	-.161	.093	.039	.197	.292	1			
	p	.686	<.001	.002	.082	.475	<.001	<.001				
Denial	*r*	.055	.053	.190	-.194	.133	-.071	-.028	-.300	1		
	p	.306	.318	< .001	< .001	.014	.182	.604	<.001			
BDI	*r*	-.126	-.183	-.364	.145	-.105	.493	.487	.186	-.129	1	
	p	.018	.001	< .001	.006	.053	< .001	< .001	<.001	.016		
Bother	*r*	-.119	-.273	-.029	-.056	-.171	.267	.153	.275	-.129	.230	1
	p	.026	< .001	.593	.292	.001	< .001	.004	<.001	.015	< .001	

The first canonical correlation was .65 (42 per cent of variance) and the second was .37 (14 per cent of variance). The remaining two canonical correlations were too small to be interpreted, accounting for under 10 per cent of variance (Tabachnik and Fidel, 1996). The overall canonical correlation was Wilks' Lambda = .224, p < .001, $r_{can} = .88$.

Data on the first two pairs of canonical variates appear in Table 12.

Table 12 Whole Sample: Correlations, standardised canonical coefficients, canonical correlations, percents of variance and redundancies between positive and negative variables and their corresponding canonical variates

	First canonical variate		Second canonical variate		Totals
	Correlation	Coefficient	Correlation	Coefficient	
Positive Variables					
Menstruation as natural	.12	-.02	.02	-.03	
Social acceptability	**.59**	.38	**.81**	.97	
Attractiveness	**.93**	.83	**-.36**	-.62	
Strength/fitness (ref SQRT)	-.28	-.03	.10	-.04	
Percent of variance	33%		20%		53%
Redundancy	14%		3%		17%
Negative Variables					
Sexual activity	**-.31**	-.24	-.07	-.17	
Salience (SQRT)	**-.33**	.28	-.18	-.29	
Disparagement (LG10)	**-.90**	-.81	.15	.46	
Menstruation as debilitating	**-.45**	-.19	**-.74**	-.71	
BDI Fast-Screen	**-.59**	-.32	.13	.28	
Menstruation as bothersome	-.23	-.09	**-.61**	-.50	
Percent of variance	27%		17%		44%
Redundancy	11%		2%		13%
Canonical correlation	.65		.37		

With a cut-off correlation of .3 (highlighted in table 12), the variables in the negative set that were correlated with the first canonical variate were sexual activity, salience, disparagement, menstruation as debilitating and BDI. The first pair of canonical variates indicate those who are not sexually active (-.31), don't place a great importance on their weight and shape (salience) (-.33), don't feel disgusted by their bodies (disparagement) (-.90), don't see menstruation as very debilitating (-.45) and have higher mood (-.59) also tended to see menstruation as more socially acceptable (.59) and felt more attractive (93).

The second pair of canonical variates indicate that those who don't see menstruation as very debilitating (-.74) or bothersome (-.61) tend to see menstruation as socially

acceptable (.81), but don't feel very attractive (-.36). Redundancies on this second canonical correlation were low, the positive variate only accounting for 3 per cent of the variance in the negative variate, and the negative variate only accounting for 2 per cent of variance in the positive variate. Interpretation of relationships between this second pair of variates is therefore marginal.

3.5.1 Further Investigative Analysis

Further investigation was conducted by performing the same canonical correlation as above on each of the groups of pre and post menarcheal girls.

Pre-menarcheal Group

The first canonical correlation was .56 (32 per cent of variance), the second was .49 (24 per cent of variance). The remaining two canonical correlations were too small to be interpreted. The overall canonical correlation was Wilks' Lambda = .166, $p < .001$, $r_{can} = .91$.

Data on the first two pairs of canonical variates appear in Table 13.

Table 13 Pre-menarcheal group: Correlations, standardised canonical coefficients, canonical correlations, percents of variance and redundancies between positive and negative variables and their corresponding canonical variates

	First canonical variate		**Second canonical variate**		**Totals**
	Correlation	Coefficient	Correlation	Coefficient	
Positive Variables					
Menstruation as natural	.08	.05	-.09	.02	
Social acceptability	**.73**	.57	-.11	-.02	
Attractiveness	.21	.31	**-.96**	-.89	
Strength/fitness (ref SQRT)	**.71**	.72	**.51**	.28	
Percent of variance	27%		30%		57%
Redundancy	9%		7%		16%
Negative Variables					
Sexual activity	**.44**	.27	.10	.24	
Salience (SQRT)	.22	.82	**.71**	.20	
Disparagement (LG10)	-.29	-.61	**.92**	.70	
Menstruation as debilitating	-.19	.07	.22	.08	
BDI Fast-Screen	**-.34**	-.19	**.63**	.24	
Menstruation as bothersome	**-.70**	-.68	-.08	-.22	
Percent of variance	16%		30%		46%
Redundancy	5%		7%		12%
Canonical correlation	.56		.49		

The first pair of canonical variates indicate that those who are sexually active (.44), do not suffer from low mood (-.34) and do not perceive menstruation to be bothersome (-.70) also tended to see menstruation as socially acceptable (.73), but did not perceive themselves as strong and fit (.71).

The second pair of canonical variates indicate that those who do not feel attractive (-.96) or strong and fit (.51) also tended to see place a higher importance on their weight and shape (.71), felt more disgusted with their bodies (.92) and experienced lower mood (.63).

It should also be noted that there were only two girls in this group who said that they were sexually active. Results relating to this variable should therefore be interpreted with caution.

Post-menarcheal group

The first canonical correlation was .69 (48 per cent of variance) and the second was .41 (17 per cent of variance). The remaining two canonical correlations were too small to be interpreted. The overall canonical correlation was Wilks' Lambda = .226, $p < .001$, $r_{can} = .88$.

Data on the first two pairs of canonical variates appear in Table 14.

The first pair of canonical variates indicate those who are sexually active (.36), feel more disgusted by their bodies (.90), see menstruation as more debilitating (.45) and have lower mood (.59) also tend to see menstruation as less socially acceptable (-.58), felt less attractive (.94) and feel less strong and fit (.32).

The second pair of canonical variates indicate that those who place more emphasis on weight and shape (.40) and see menstruation as more debilitating (.71) and bothersome (.54) also tend to feel more attractive (.33) but see menstruation as less socially acceptable (-.81). Redundancies on this second pair of variates were low, interpretations therefore being marginal.

In summary, the hypothesis was partly upheld for the whole sample, with the positive variables of social acceptability and attractiveness being negatively associated with salience of weight and shape, disparagement, menstruation as debilitating and mood, which measured more negative attitudes, along with the variable for sexual activity. The variables for menstruation being seen as natural, strength and fitness and menstruation as bothersome were not significantly associated with any others. Further investigative analysis, splitting the whole group into pre and post menarcheal groups, showed that variables were related differently between these two groups.

Table 14 Post-menarcheal group: Correlations, standardised canonical coefficients, canonical correlations, percents of variance and redundancies between positive and negative variables and their corresponding canonical variates

	First canonical variate		**Second canonical variate**		**Totals**
	Correlation	Coefficient	Correlation	Coefficient	
Positive Variables					
Menstruation as natural	-.12	.03	-.04	.01	
Social acceptability	**-.58**	-.34	**-.81**	-.99	
Attractiveness	**-.94**	-.83	**.33**	.59	
Strength/fitness (ref SQRT)	**.32**	.05	-.12	-.04	
Percent of variance	34%		20%		54%
Redundancy	16%		3%		19%
Negative Variables					
Sexual activity	**.36**	.23	.14	.23	
Salience (SQRT)	.29	-.29	**.40**	.57	
Disparagement (LG10)	**.90**	.80	-.06	-.52	
Menstruation as debilitating	**.45**	.18	**.71**	.67	
BDI Fast-Screen	**.59**	.32	-.10	-.28	
Menstruation as bothersome	.21	.07	**.54**	.38	
Percent of variance	27%		17%		44%
Redundancy	13%		3%		16%
Canonical correlation	.69		.41		

4 Discussion

4.1 The Sample

354 participants made up the sample whose data was analysed. These participants came from two different schools, the proportion of the female population of one school being about 80 per cent from each year and the proportion from the other about 5 per cent from each year. The participants were selected by which classes were convenient to use. A number of girls chose not to take part in the study. As there is no information on those who did not take part, it is not possible to say if this group was any different to those who did, although there is a likelihood that those who decided not to be involved did so due to feeling less comfortable with the subject. There is thus a possibility that this group might then have scored lower on some of the positive attitudinal variables. Previous research (Ruble and Brooks-Gunn, 1982) suggests that girls who have just started menstruation are the least likely to want to talk about it. It may be that some of the abstaining girls fell into this category. It is also possible, however, that those who decided not to take part simply wanted to go to their gym class.

As expected there was a significant difference in age between the pre and post menarche groups, the post menarche group being older. Interestingly, the post menarche group's mean recollection of their age at menarche (12.36) was slightly younger than the actual mean age of the pre menarche group (12.51). This raises some questions about how accurate recollections of the timing of menarche are for this group. At 12.36 years for the age of menarche this group reported a slightly lower age than found by Whincup et al. (2001) who report an average age of 12.9 years at menarche for British girls.

The current study found that scores on Body Attitude (BAQ) were similar to those found in Ben-Tovim and Walker's (1991) normative study, apart from on the measure of strength and fitness. This sample scored in a similar range to the anorexic sample in this previous study on the strength and fitness subscale. It is

possible that this could be an age effect, Ben-Tovim and Walkers normative sample ranged in age from 15 to 65 years. Their anorexic sample was significantly younger averaging 24.6 years.

The distribution of scores on the BDI Fast-Screen were in line with what would be expected for a normal population (Beck et al., 2000). In this study however, the 4 per cent who scored in the severely depressed range were removed before analysis due to concerns that their scores may have a disproportionate influence on results, leading to questionable interpretation with regard to the non depressed majority. Ideally it would have been interesting to look at these cases as a distinct group in themselves, in order to establish if they showed a different pattern of attitudes to the rest of the sample. Unfortunately this was not possible due to small numbers in this group. It must therefore be recognised that the results displayed throughout this thesis do not generalise to the severely depressed section of the adolescent population.

It is not possible to comment on normative scores with relation to the Menstrual Attitudes Questionnaire with regard to the sample for the present study as this version of the scale was created specifically for this study.

4.2 Summary of Findings: Hypothesis One

This hypothesis aimed to answer the question of whether menarche is a pivotal event in the development of body image by examining if there is a distinct change in attitudes towards the body post menarche. As there was a significant difference in age between the two experimental groups, age was controlled for. The three dependent variables explored were feelings of strength and fitness, feelings of attractiveness and the amount of importance placed on weight and shape in the individual's life (salience). Analysis did not distinguish significant differences in these attitudes towards the body between the pre and post menarche groups, the hypothesis not being upheld. There was, however, a significant interaction between age and menarcheal status with regard to strength and fitness. Feelings of strength and fitness increased both with age and post menarche. Salience also increased with

both age and menarche, although this was not significant. Attractiveness did not show any particular pattern.

Interestingly both age and menarche were found to be related to significant changes in body image when looked at independently, but this effect disappeared once the other variable was entered as a covariate, neither being attributed to changes on their own. It appears that for this sample menarche does not appear to be such a decisive event, and that the development of attitudes towards the body may be a more gradual developmental process. Development of body image is, however, likely to be quite an individual process, and this individuality will have been lost in this kind of analysis. Meanings that individuals give to pubertal changes are thought to be important in how they experience their bodies (Brooks-Gunn, 1990). Ruble and Brooks-Gunn (1982) found three main patterns of emotions related to menarche, mixed positive and negative, mainly positive and mainly negative, in pretty equal proportions. It could therefore be the case that some girls' attitudes are shaped by these emotions in opposing ways with the effect in the overall sample being that they cancel each other out. These results may therefore not be that surprising, and it might be useful for future research to use a longitudinal within subjects design to look at how groups of girls with different attitudes and characteristics pre menarche respond to the event.

4.3 Summary of Findings: Hypothesis Two

The aim of hypothesis two was to investigate whether apparently conflicting attitudes towards menstruation are related to lower mood and less favourable attitudes towards the body. The expectation was that there would be an interaction between the independent variables of denial of the effects of menstruation and perception that menstruation is a debilitating event, with individuals who had high scores on both of these variables experiencing lower mood, a higher score on measure of salience and lower scores on measures of attractiveness and strength/fitness. This was not found to be the case, hypothesis two not being upheld, although mean scores on the dependent variables for those who had conflicting attitudes were in the expected

direction compared to those who did not experience menstruation as debilitating or deny its effects.

Interestingly those who had high scores for both the debilitating and denial variables had slightly more favourable attitudes towards the body on the variables for salience, attractiveness and strength/fitness than those who felt menstruation to be debilitating but did not deny its effects. It could be, that for those who do experience menstruation as debilitating, denying that it has any effects is protective. By denying menstruation's effects on herself, the girl may avoid negative thoughts associated with how well she is (or is not) fitting in with social expectations to not be affected by menstruation.

4.4 Summary of Findings: Hypothesis Three

The aim of this hypothesis was to investigate two questions. Firstly, whether menarche was accompanied by an immediate drop in mood and scores on measures of how natural and socially acceptable menstruation was perceived to be. Secondly whether a period of experience of menstruation was related to increased comfort with menstruation as a natural and socially acceptable part of the self and improved mood.

Mean scores for both menstruation as socially acceptable and menstruation as natural were in the expected direction, however, the only significant difference was between scores on the socially acceptable scale between the groups who had just reached menarche and who had had one to two years experience of menstruation. This finding concurs with that of Brooks-Gunn and Ruble (1982), which also found that experience of menstruation tended to lead to more balanced views of menstruation. The subscale for this variable was made up of questions relating to how comfortable the individual would feel about others knowing they were menstruating, concerns about smell and cleanliness and levels of attractiveness during menstruation. It is possible that as girls gain experience they are put in situations where they have to buy sanitary products and that simple exposure to this type of event lessens their embarrassment. Brooks-Gunn and Ruble (1982) also found that although girls do not

tend to tell friends about menarche, they begin to speak to friends about it a little later, which could lead to it being seen as increasingly socially acceptable.

Scores on the BDI Fast-Screen increased over time, being lowest pre menarche and highest after one to two years of experience a significant difference being found between the pre menarche and one to two years of experience groups. An improvement in mood did therefore not accompany increasing perception of menstruation as socially acceptable. This could be due to a number of other developmental factors around for adolescent girls at this age. Other studies have noted that there is often a drop in self-esteem around the age of 12, associated with cognitive changes and a growing sensitivity to others judgements of the self (Carr, 1999). It has been found that girls become increasing dissatisfaction with their bodies between the ages of 13 and 18 (Rosenblum and Lewis, 1999). Given that the three groups probably increased in age as well as experience of menstruation, and had filled in a questionnaire entirely relating to feelings about their bodies immediately prior to filling out the BDI, it may not be that surprising that they reported lower mood.

4.5 Summary of Findings: Hypothesis Four

The aim of hypothesis four was to identify if those who had high scores on the more positive attitudinal variables tended to have low scores on the attitudinal variables measuring negative concepts. It was also expected that those with low scores on the variable related to low mood and dissatisfaction with the body would be less likely to be sexually active.

The main pattern that emerged from this analysis was that those who felt more attractive and saw menstruation as more socially acceptable tended to have low scores on measures of disgust regarding the body, tended not to over emphasise of the importance weight and shape (salience), saw menstruation as less debilitating, reported better mood and were less likely to be sexually active. This finding meets expectations to a large extent, although seeing menstruation as natural and feelings of strength/fitness do not play a part in this relationship.

Further analysis looking at groups for pre and post menarche separately found that the pattern of relationships was different for each group. For the pre menarche group there were two clear patterns of relationship. Firstly, those who saw menstruation as socially acceptable and did not perceived themselves as strong and fit tended to have low BDI scores and did not think menstruation was bothersome. Secondly, those who did not see themselves as attractive or strong/fit tended to place more importance on weight and shape, felt more disgust with their bodies and had higher BDI scores.

The post menarche group again showed one main pattern of relationships between the variables. Those who did not see menstruation as socially acceptable and did not feel attractive or strong/fit tended to feel greater disgust towards the body, saw menstruation as more debilitating, experienced lower mood and were more likely to be sexually active.

It is interesting that in the pre menarche group there are two different patterns of interpretable strength where as for the post menarche group there was only one main pattern. The pre menarche sample shows a slight split in which variables are associated with measures regarding attitudes towards the body related to weight (disgust with the body and over emphasis on weight and shape). In the pre menarche sample social acceptability of menstruation and strength/fitness are associated with mood and other attitudinal variables towards menstruation. Attitudes towards weight and shape are related to attitudes regarding attractiveness and strength/fitness. In the post menarche sample these attitudes appear to have merged to some extent, with social acceptability, attractiveness and strength/fitness all relating to more negative feelings, including disgust with the body, but not overemphasis on weight and shape. This may suggest that menarche and experience of menstruation integrates awareness of social attitudes to menstruation with feelings towards body weight. This may indicate an agreement with the prediction in our rational that taking on the less healthy aspects of societies views towards menstruation at this time may lead to dissatisfaction with another socially stigmatised part of the body, specifically that of weight. These conclusions however are tentative due to the non validated nature of

our measure of social acceptability and the purely correlational nature of the research design.

It is notable that the measure of menstruation as natural does not appear to be involved in any relationships between variables. We could speculate on a couple of reasons for this such as objectification of the female body in western society leading to girls not being well connected with their own bodies and pattern of their menstrual cycles (Roberts, 2004), the idea of menstruation being natural therefore being an alien concept. It may also be linked to the observed irregularity of a lot of girls' cycles in this sample, them just not having had the chance to observe the rhythm and nature of their cycle.

4.6 Discussion of Methodological Limitations

4.6.1 Design

There are a number of methodological limitations to this study, which need to be considered. Firstly, the study looked at differences between groups of participants, principally those who had or had not reached menarche. Because menarche is a developmental stage, this meant that the two groups were of significantly different ages. This makes it difficult to identify whether effects found were related to the event of menarche and ensuing experience of menstruation, or to the age of the participants. A between subjects design also makes it impossible to look for any effects where there are variations between individuals, the design being restricted to looking for large uni-dimensional differences between groups. It may be, for example, that that those who have a more positive set of attitudes towards their bodies before menarche experience increased satisfaction post menarche and that a more negative attitudes are also accentuated by the event.

As the design of hypothesis four is correlational it is only possible to draw conclusions regarding associations between variables. The design does not allow us to say anything about causal directions within these relationships. This kind of

design is useful, however, for generating hypotheses for future research, this study being an exploration of relationships between menarche, body attitude and mood.

In order to look at more complex patterns such as causal relationships a longitudinal within subjects design would be more appropriate.

4.6.2 Measures

The Menstrual Attitudes Questionnaire (MAQ) proved to be the questionnaire that had the most missing data in this study. Most of this was for the pre-menarche group, and probably related to many of the questions being worded as if the respondent had experience of menstruation, with questions such as 'I am more easily upset just before, or during my periods than at any other time of the month'. Although the participants had been asked to imagine how a person who had their periods might respond, this may have been quite difficult to answer, particularly given the taboo nature of menstruation meaning that she may have had little experience of any discourse surrounding the subject.

The MAQ had been re-worded for this study in order to make it more comprehensible to a Scottish adolescent research sample. A new section had also been added in order to explore attitudes toward the social acceptability of menstruation. The questionnaire was thus a revised measure, which was not validated before the study. All the original subscales showed reasonable internal consistency, as checked by Cronbach alpha coefficients. The Cronbach alpha coefficient for the new social acceptability scale was, however, quite low at 0.46. This suggests that this subscale may have been measuring more than one construct and interpretation of results with regard to this subscale should be made cautiously.

The Body Attitudes Questionnaire (BAQ) was administered to this sample unchanged. However, this caused some difficulties with two questions, with regard to the words 'mutilated' and 'iron man', some girls not understanding what they meant. These two questions accounted for the majority of missing data in the BAQ. The data for one of these questions was subsequently removed from the items that made up the subscale score for strength and fitness due to a low correlation within

this subscale when Cronbach alpha coefficients were examined. The other one, however, remained as part of the disparagement subscale. It possible that this may have created slightly misleading scores on this subscale for some participants.

It had been hoped that a body mass index (BMI) score could have been calculated for participants as one of the variables in order to control for this factor in interpreting body attitudes. Most of the participants did not know both their height and weight however, so this was not possible for a substantial number of cases and the variable was not used.

4.6.3 Clinical Implications of the Current Study

Implications of this study are tentative, due to its exploratory nature, however, findings indicate that how attractive adolescent girls feel and their perception of how socially acceptable menstruation is are related to unhelpful attitudes toward the body, greater feelings of debilitation with regard to periods and an increased likelihood to be involved in sexual activity. Given that feelings regarding greater social acceptability appear to increase with experience it may be useful to look at how this process can be facilitated, possibly looking at the way girls are prepared for menarche and the messages they are receiving.

4.6.4 Future Research

Given some of the findings in the current research it would be interesting to further explore the relationship between perception of social attitudes towards menstruation and the development of attitudes towards the body in adolescent girls. This may lead to a greater understanding of the processes by which representations of the gendered self are incorporated at this important time.

As noted, results from this study do not extend to a severely depressed population. It would be worth while looking at how patterns of attitudes for a depressed group compare with this sample, there possibly being quite different relationships between attitudinal factors.

A more qualitative look at development of body image in relation to menarche and menstruation may be enlightening in terms of some o the more intricate patterns of attitudinal relationships associated with individual differences.

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6 Appendices

3 May 2004

To all girls at High School

RESEARCH INFORMATION SHEET

I am a Trainee Clinical Psychologist at Edinburgh University, who works at the Child and Adolescent Mental Health Service in . At the moment, I am doing some research in schools in , including High School. I am looking for girls between the ages of 12 and 19 to take part in this project.

What is the Research?

I am interested in finding out what girls from the age of 12 to 19 think about periods, and if this is related to how they feel about their bodies. I want to know the views of girls of different ages whether they have started their periods or not.

What will I be asked to do if I take part?

If you agree to take part, you will be asked to fill in several paper and pencil questionnaires asking about your periods, your thoughts about periods in general, how you feel about your body, and your mood. This should take about thirty minutes to do. The questionnaires are all anonymous, so no one will know which one is yours. Taking part is totally voluntary and you can decide that you do not want to continue with the questionnaire at any time.

What if I have any questions or worries?

There will be time to ask questions before and after filling in the questionnaire.
If, after you have filled in the questionnaire, you find that it has made you worry about things, and you would like to talk this over with someone you could do one of these things:

Talk to your guidance teacher
Talk to another teacher you trust
Talk to your family doctor
Call me (Cyan Harte) at

Thank you for your time,

Cyan Harte
Trainee Clinical Psychologist

RESEARCH INFORMATION SHEET FOR PARENTS

Dear parent/guardian,

I am a Trainee Clinical Psychologists at Edinburgh University, who is based within the Child and Adolescent Mental Health Service at . I am currently undertaking research in schools in the . High School has agreed to participate in this research, and your daughter has been invited to take part.

Purpose of the Research

The purpose of this research project is to look at attitudes towards and experience of menstruation in relation to girl's feelings about themselves and their bodies. These factors will be looked at across a range or ages from first to sixth year of secondary school, and will include both girls who have, and who have not started their periods. It is hoped that further knowledge about the impact that menstruation has on developing girls will give us some insight into problems which sometimes arise during this exciting but turbulent time in young women's lives.

What will participation involve

Girls who agree to take part will be asked to fill out a series of paper and pencil questionnaires regarding their attitudes towards menstruation, their bodies and their feelings about themselves. The questionnaires are anonymous and responses will be confidential. Participation is voluntary and all participants are free to withdraw at any point. There will also be an opportunity for girls to ask any questions that they may have before, and after, filling in the questionnaires. Testing will probably be carried out during social education class time, therefore not impinging on time set aside for academic classes.

If you **do not** wish your child take part in this research project please fill in and sign the opt-out slip below and return it to the school. If we do not hear from you, we will assume that you are happy for your daughter to take part.

Please do not hesitate to contact me at the above telephone number if you have any queries concerning this research.

Yours sincerely,

Cyan Harte
Trainee Clinical Psychologist

....

Re: Research into attitudes towards menstruation, body and self.

I **do not** wish my daughter to take part in the above research project

Name of pupil:____ Class:______________________

Name of parent/guardian date signature or parent/guardian

CONSENT FORM

Title of project: Relationship between menstrual attitudes, body image and mood.

Name of researcher: Cyan Harte, Trainee Clinical Psychologist

I confirm that I have read and understand the information sheet dated 03/05/2005 for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

I agree to take part in the above study.

Name of pupil	Date	Signature
____________________	____________	____________________

Pin number__________

GENERAL INFORMATION

1. Age: __________ years **2.** Height: __________ **3.** Weight: __________

4. Have you started your periods yet? yes / no *(please circle your answer)*

Part One

Only answer these questions if you have started your periods. If you have not started, go to Part Two.

5. How old were you when you had your first period? __________ years old

6. How long ago was your first period? _______ years _______ months _______ weeks ago

7. Are you having a period at the moment? yes / no *(please circle your answer)*

If no, how long ago did your last period finish?

________ months ________ weeks ________ days ago

8. How often do you have your periods? *(please circle the answer that sounds like you)*

a. My periods are usually somewhere between 22 and 35 days apart.

b. The time between my periods is usually less than 22 days but regular, or, the time between my periods is usually more than 35 days but regular.

c. I never know when my period is going to start, sometimes there are a few weeks between my periods, and sometimes it doesn't come for months.

9. How painful are your periods? *(place a mark on the line)*

|————————————————————————|

Not at all painful So painful I can't bear it

Part Two

Please answer all the questions in part two.

10. Are you taking the contraceptive pill at the moment? yes / no *(please circle your answer)*

11. Do you have any health problems, or are you taking any medication at the moment?

yes / no *(please circle your answer)*

If your answer is yes, what problems do you have / what medication are you taking?

____

12. Do you have a disability? yes / no *(please circle your answer)*

13. Are you sexually active? yes / no *(please circle your answer)*

MENSTRUAL ATTITUDES QUESTIONNAIRE

This questionnaire contains a number of statements about monthly periods. Please read each statement carefully and tick the box that shows how much you agree or disagree with it.
If you have not started your periods yet, or do not feel you have had enough experience of your own periods to know the answer to some of the questions, tick the box that you think most girls who have their periods would tick.
Do not spend a long time thinking about which box to tick. There are no right or wrong answers and your initial reaction is probably the closest to what you really think.

1	Girls are more tired than usual when they are having their period.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
2	In some ways I enjoy my periods.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
3	I don't believe that if I am having my period there is any change in how well I do in my school work.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
4	Other people can tell when a girl is having her period even if she does not tell anyone.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
5	Having periods lets me know how well my body is working.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
6	I can tell when it is almost time for my period because I get tender breasts, backache, cramps, or other physical changes.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
7	Periods are a regular event, which prove that I am a woman.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
8	Having periods allows girls to know more about how their bodies work and feel.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
9	Girls just have to learn to live with the fact that they may not be as good at things when they are having their period.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree
10	It is important that girls wash much more than usual when they are having a period.	☐ strongly agree	☐ agree	☐ neutral	☐ disagree	☐ strongly disagree

11	Other people should not be critical of girls who are easily upset before or during their periods.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
12	I expect my friends to be more thoughtful towards me when I am having my period.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
13	Many things that happen in nature have a regular rhythm, and periods are an example of this.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
14	Most girls make too much of a big deal out of the small physical changes that happen during their periods.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
15	I would not be embarrassed about walking into a shop and buying sanitary towels or tampons.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
16	Girls who think that they are grumpy because their period is about to start are over sensitive.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
17	I feel as fit when I am having my period as I do at any other time of the month.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
18	I hardly notice the small changes in the way my body feels during my periods.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
19	Avoiding certain activities during your period is often a good idea.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
20	I cannot expect as much of myself when I am having my period as I do during the rest of the month.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
21	I hope it will be possible someday to get a period over and done with in a few minutes.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
22	Periods can make me less good at sport than usual.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
23	When a girl has a period every month, it is a sign that she is healthy.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

24	Changes in my mood are not influenced by my periods or by how long it is until my next period.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
25	Girls are just as good at sport when they are having their period as at any other time.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
26	The only thing having a period is good for is to let me know I am not pregnant.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
27	Cramps are only annoying if you pay attention to them.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
28	Most girls put on weight before, or during their period.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
29	Changes that take place in the body because of a girl's period are normally not any bigger than changes that take place in the body anyway.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
30	Boys have a real advantage in not having their period interrupt them every month.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
31	Girls are as attractive when they are having their period as at any other time.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
32	I don't allow the fact that I am having my period get in the way of my usual activities.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
33	I would not mind if others knew that I was having a period.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
34	I have learned to know when my period is about to come, because of changes in my mood just before it starts.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
35	Most girls sometimes worry that they smell bad when they are having a period.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
36	Periods are something that I just have to put up with.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

37	Girls who complain about pain or being upset because of their periods are just using it as an excuse.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
38	I am more easily upset just before, or during my periods than at other times of the month.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
39	If a girl thinks she is grumpy or stressed because of her period, she is imagining it.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

Thank you for filling in this questionnaire.

Please turn over to the next page.

BEN-TOVIM WALKER BODY ATTITUDES QUESTIONNAIRE

This questionnaire contains a number of statements. Please read each statement carefully and tick the box that shows how much you agree or disagree with it.
Do not spend a long time thinking about which box to tick. There are no right or wrong answers and your initial reaction is probably the closest to what you really think.

1	I usually feel physically attractive.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
2	I prefer not to let other people see my body.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
3	People hardly ever find me sexually attractive.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
4	I get so worried about my shape that I feel I ought to diet	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
5	I feel fat when I can't get clothes over my hips	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
6	People avoid me because of my looks.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
7	I feel satisfied with my face.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
8	I worry that other people can see rolls of fat around my waist and stomach.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
9	I think I deserve the attention of the opposite sex	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
10	I hardly ever feel fat.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
11	There are more important things in life than the shape of my body.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

12	I think it is ridiculous to have plastic surgery to improve your looks.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
13	I like to weigh myself regularly	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
14	I feel fat when I wear clothes that are tight around the waist.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
15	I have considered suicide because of the way I look to others.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
16	I quickly get exhausted if I overdo it.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
17	I have a slim waist.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
18	My life is being ruined because of the way I look.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
19	Wearing loose clothing makes me feel thin.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
20	I hardly ever think about the shape of my body.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
21	I feel that my body has been mutilated	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
22	I am proud of my physical strength.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
23	I feel that I have fat thighs	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
24	I couldn't join in with games or exercise because of my shape.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

25	Eating sweets, cakes or other high calorie foods, makes me feel fat.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
26	*I have a strong* body.	❑ *strongly* agree	❑ *agree*	❑ *neutral*	❑ *disagree*	❑ *strongly disagree*
27	I think my buttocks are too large.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
28	I feel fat when I have my photo taken.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
29	I try and keep fit.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
30	Thinking about the shape of my body stops me from concentrating.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
31	I spend too much time thinking about food.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
32	I am preoccupied with the desire to be lighter.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
33	If I catch sight of myself in a mirror or a shop window it makes me feel bad about my shape.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
34	People laugh at me because of the way I look.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
35	I often feel fat.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
36	I spend a lot of time thinking about my weight.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
37	I am a bit of an "Iron-man".	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

38	I feel fat when I am lonely.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
39	I worry that my thighs and bottom look dimply.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
40	People often compliment me on my looks.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
41	Losing one kilogram in weight would not really affect my feelings about myself.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
42	I feel fat when I can no longer get into clothes that used to fit me.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
43	I have never been strong.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree
44	I try to avoid clothes which make me especially aware of my shape.	❑ strongly agree	❑ agree	❑ neutral	❑ disagree	❑ strongly disagree

Thank you for filling in this questionnaire.

Please turn over to the next page.

BDI FAST SCREEN

This questionnaire consists of groups of statements. Please read each group of statements carefully, then pick out the one statement in each group which best describes the way you have been feeling during the past 2 weeks, including today! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle the statement which has the largest number.

1.

- **0** I do not feel sad.
- **1** I feel sad much of the time.
- **2** I am sad all the time.
- **3** I am so sad or unhappy that I can't stand it.

2.

- **0** I am not discouraged about my future.
- **1** I feel more discouraged about my future than I used to be.
- **2** I do not expect things to work out for me.
- **3** I feel my future is hopeless and will only get worse.

3.

- **0** I do not feel like a failure.
- **1** I have failed more than I should have.
- **2** As I look back, I see a lot of failures.
- **3** I feel I am a total failure as a person.

4.

- **0** I get as much pleasure as I ever did from the things I enjoy.
- **1** I don't enjoy things as much as I used to.
- **2** I get very little pleasure from the things I used to enjoy.
- **3** I can't get any pleasure from the things I used to enjoy.

5.

- **0** I feel the same about myself as ever.
- **1** I have lost confidence in myself.
- **2** I am disappointed in myself.
- **3** I dislike myself.

6.

- **0** I don't criticise or blame myself more than usual.
- **1** I am more critical of myself than I used to be.
- **2** I criticise myself for all of my faults.
- **3** I blame myself for everything bad that happens.

7.

- **0** I don't have any thoughts of killing myself.
- **1** I have thoughts of killing myself, but I would not carry them out.
- **2** I would like to kill myself.
- **3** I would kill myself if I had the chance.

__________Total

Thank you very much for taking the time to complete this questionnaire.